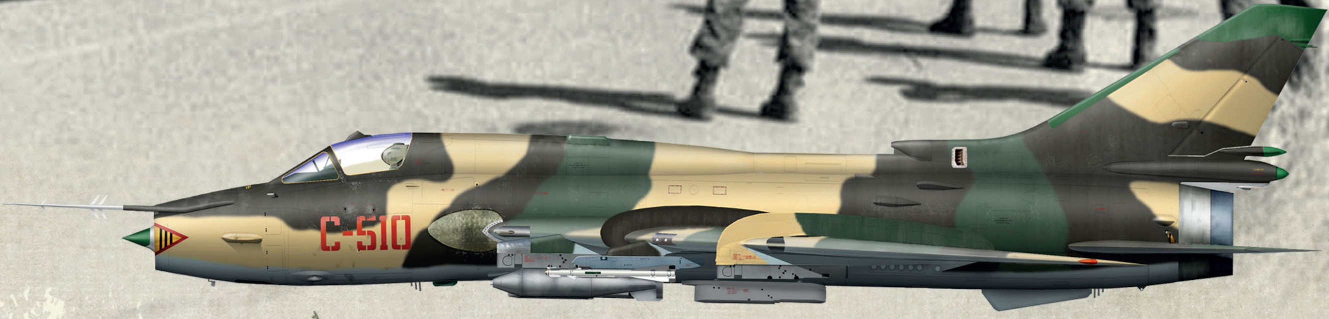
AFRICA@WAR 63

WAR OF INTERVENTION IN ANGOLA

VOLUME 5: ANGOLAN AND CUBAN AIR FORCES 1987–1992



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Cover photo: Ground crew watching as the pilot powers the Tumansky R-29 engine of his MiG-23ML (serial C483), at Lubango AB in 1988 or 1989. (via Luis Dominguez)

Cover artwork: Serial number C510 was one of the first batch of Su-22M-4s acquired by Angola in 1989. Unlike the earlier Su-20M, the Su-22M-4 variant proved highly popular in service, thanks to its reliable engine and a good navigational-attack suite and initiated a period when the Angolan air force repeatedly purchased additional examples. (Artwork by Tom Cooper)

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Note: To simplify the use of this book, all names, locations and geographic designations are as provided in *The Times World Atlas*, or other traditional accepted major sources of reference, as of the time of the described events. For example, the modern-day Republic of Namibia is usually cited as South West Africa because that designation of this territory remained in use in the English language while it was under South African administration, from 1915 until 1990 – despite the decision of the United Nations General Assembly from 1968, which changed its designation to Namibia. When mentioned for the first time in the text, aircraft and heavy weapons system designations are cited fully – including their designer and/or the manufacturer, official military designation and nickname: in the case of Soviet-made armament: this is followed by the ASCC/NATO-codename, which is then used through the text. The same principle has been applied to the Angolan and Cuban military terminology.

Abbreviations

AB	air base
ASCC	Air Standardisation Coordinating Committee (US, UK, Australian and New Zealand committee for standardisation of designations for foreign [primarily Soviet] armament; its codenames were subsequently adopted by NATO, and are commonly known as 'NATO designations')
ATS	*Agrupación de Tropas del Sur* (Southern Group of Forces, FAR)
BDAA	*Brigade da Defese Anti-Aérea* (Air Defence Brigade, FAPA/DAA)
BrDA	*Brigada de Desmbarque e Assalto* (Airborne Assault Brigade, FAPLA)
BrI	*Brigada da Infantaria* (Infantry Brigade, FAPLA)
BrIM	*Brigada da Infantaria Motorizada* (Motorised Infantry Brigade, FAPLA)
BrIL	*Brigada da Infantaria Ligeira* (Light Infantry Brigade, FAPLA)
CO	Commanding Officer
DAA/FAR	*Defensa Antiaérea y Fuerza Aérea Revolucionaria* (Revolutionary Air Defence and Air Force, Cuba)
FALA	*Forças Armadas de Libertação de Angola* (Angola Liberation Armed Forces; armed wing of UNITA)
FAPA/DAA	*Força Aérea Popular de Angola/Defesa Anti-Aérea* (Angola People's Air Force and Anti-Aircraft Defence)
FAPLA	*Forças Armadas Populares de Libertação de Angola* (People's Armed Forces of Liberation of Angola)
FAR	*Fuerzas Armadas Revolucionarias* (Revolutionary Armed Forces, of Cuba)
IAP	International Air Port
IFF	Identification Friend or Foe
IFV	infantry fighting vehicle
MANPAD	man-portable air defence (system)
MBT	main battle tank
MiG	Mikoyan i Gurevich (the design bureau led by Artyom Ivanovich Mikoyan and Mikhail Iosifovich Gurevich, also known as OKB-155 or MMZ' "Zenit")
MININT	*Ministerio del Interior* (Ministry of the Interior, Cuba)
MMCA	*Misión Militar de Cuba en Angola* (Cuban Military Mission in Angola)
MPLA	*Movimento Popular de Libertação de Angola* (People's Movement for the Liberation of Angola)
MRLS	multiple rocket launcher (system)
PLAN	People's Liberation Army of Namibia (SWAPO's armed wing)
RPG	rocket-propelled grenade (launcher)
RA/DAAS	*Região Aérea de Defesa Anti-Aérea Sul* (Southern Air Defence Region, FAPA/DAA)
RACB	*Regimento de Aviação de Caça-Bombardeiro* (fighter-bomber aviation regiment, FAPA/DAA)
RAH	*Regimento Aéreo de Helicóptero* (helicopter aviation regiment, FAPA/DAA)
RATM	*Regimento Aéreo de Transporte Misto* (mixed transport aviation regiment, FAPA/DAA)
RSA	Republic of South Africa
SAAF	South African Air Force
SADF	South African Defence Forces
SAM	Surface to Air Missile
SA-2 Guideline	ASCC/NATO-codename for Soviet S-75 Dvina SAM system
SA-3 Goa	ASCC/NATO-codename for Soviet S-125 Pechora SAM system
SA-6 Gainful	ASCC/NATO-codename for Soviet ZRK-SD Kub/Kvadrat SAM system
SA-7a Grail	ASCC/NATO-codename for Soviet 9K32 Strela-2 MANPAD
SA-7b Grail	ASCC/NATO-codename for Soviet 9K92M Strela-2M MANPAD
SA-8 Gecko	ASCC/NATO-codename for Soviet 9K33 Osa SAM system
SA-9 Gaskin	ASCC/NATO-codename for Soviet ZRK-BD Strela-1 SAM system
SA-13 Gopher	ASCC/NATO-codename for Soviet ZRK-BD Strela-10 SAM system
SA-14 Gremlin	ASCC/NATO-codename for Soviet 9M36 Strela-3 MANPAD
Shilka	Soviet ZSU-23-4 self-propelled, radar-guided anti-aircraft gun
SIGINT	signals intelligence (form of communications intelligence)
SMMA	Soviet Military Mission in Angola
SPAGG	Self-Propelled Anti-aircraft Gun
SWAPO	South West African People's Organization (insurgency in the former South West Africa)
TELAR	transporter-erector-launcher and radar
UNITA	*União Nacional para a Independência Total de Angola* (National Union for the Total Independence of Angola)
USA	United States of America
USSR	Union of Soviet Socialist Republics (Soviet Union)

Introduction

The fifth volume of this mini-series and the third to focus on the operations of the Angolan and Cuban air forces, concludes the coverage of the operational history of these two branches during the war that savaged Angola between 1975–1992. This conflict was an extremely complex affair, involving multiple nationalist movements and an even larger number of foreign powers – to a degree where almost all of the involved parties gave it a different name. In the West, it is sometimes called the Angolan War, or, more precisely, the Second Angolan War; in South Africa, it is generally known as the Bush War or Border War; in Angola, it is known as the War of Intervention, and in Cuba either as Internationalist Duty or, lately, the Unnecessary War. For the reader's easier orientation this volume follows the pattern of the previous three by starting with a brief introduction of who was who in this conflict.

The work on this volume is a culmination of research by all three authors dating back to the 1980s, and became possible thanks to cooperation with a large number of very generous supporters who have helped with collection of relevant books, documentation, other information, and photographs. We would like to express our gratitude to Lieutenant Colonel Eduardo González Sarria (DAA/FAR, retired), Arthur Rickets, Albert Grandolini, Luis Dominguez, Al J Venter, Alex Diaz, Pit Weinert, Mark Lepko, Christian Pappenberg, Alvaro Ponte, Claudio Tosselli, Marco Moutinho, Willem Das, Herve Desallier and Ron C. for provision of patient advice and expertise over the years.

Government and Allies

The People's Movement for the Liberation of Angola (*Movimento Popular de Libertação de Angola*, MPLA) originally followed a leftist and nationalist ideology. After receiving very little help from the Union of Soviet Socialist Republics (USSR/Soviet Union), and the People's Republic of China (PRC/Mainland China) in the 1960s, it was defeated by the Portuguese in the early 1970s. Saved thanks to financial and material help from Yugoslavia and Algeria, it survived long enough to attract Cuban attention in 1974. A year later, the MPLA established itself in power in Luanda with some help from Portugal, but mainly from Cuba, in time to declare Angola as independent in November 1975. Following a period of internal turbulence, in 1979 the MPLA came under the control of a group of corrupt officials led by José Eduardo do Santos that converted their government into both an oligarchy and one of the principal Soviet allies in Africa. During the same period, and thanks to extensive Cuban support and Soviet provision of arms, the MPLA's armed wing was massively expanded and reorganised into the People's Armed Forces for the Liberation of Angola *(Forças Armadas Populares de Libertação de Angola,* FAPLA) – the regular Angolan armed forces. From January 1976, FAPLA included a slowly growing flying and air defence arm, the People's Air Force of Angola/Air and Antiaircraft Defence (*Força Aérea Popular de Angola/Defesa Anti-Aérea*, FAPA/DAA). To the MPLA and FAPLA, the war of 1975–1992 became known as the War of Interventions (and thus also provides the title for this mini-series).

Launching Operation Carlota in the form of an 'intervention on invitation', and thus compliant with the UN Charter in November 1975, Cuba deployed around 36,000 officers and other ranks of its Revolutionary Armed Forces (*Fuerzas Armadas Revolutionarias*, FAR) by March 1976, and did so for reasons certain to appear 'naive': the struggle against colonial rule and imperialism. Initially, the Cuban military presence and advisory activities were controlled by the Cuban Military Mission to Angola (*Misión Militar de Cuba en Angola*, MMCA). Subsequently, this body was mainly responsible for training FAPLA and for running counterinsurgency operations, and had its members assigned to the mass of minor commands in the countryside. In addition to the MMCA, the FAR deployed a number of regular units, which were operated under an effectively separate command (a detailed description of which is given later in this volume). In addition to five reinforced brigades of ground forces, by 1987 the Cuban military contingent in Angola included a large portion of the Revolutionary Air Defence and Air Force (*Defensa Antiaérea y Fuerza Aérea Revolucionaria*, DAA/FAR).

Originally reluctant to become involved in Angola, the USSR not only began selling arms to the MPLA/FAPLA, but through 1976 provided about 500 military advisors, arms and logistics support. Controlled by the Soviet Military Mission in Angola (SMMA), the majority of Soviet officers initially supported the build-up of the FAPA/DAA. Despite the MMCA essentially 'embedding' itself within FAPLA, and not only advising it but also fighting

Cuban troops with their flag and the flag of Angola during a parade outside Luanda. (Albert Grandolini Collection) for it early on, by 1978 the Soviets took over as the top military advisors at almost all levels of the hierarchy of the Angolan armed forces: the SMMA not only planned all major FAPLA operations, but its members were present in all the headquarters down to the brigade and regimental level. However, contrary to the Cubans, and with the exception of minor detachments of special forces, the Soviets never deployed entire units of their armed forces in Angola, and before 1984, they hardly ever became involved in counterinsurgency operations: on the contrary, the SMMA officers attempted planning and commanding the FAPLA as one conventional force fighting another conventional force.

Opposition and Allies

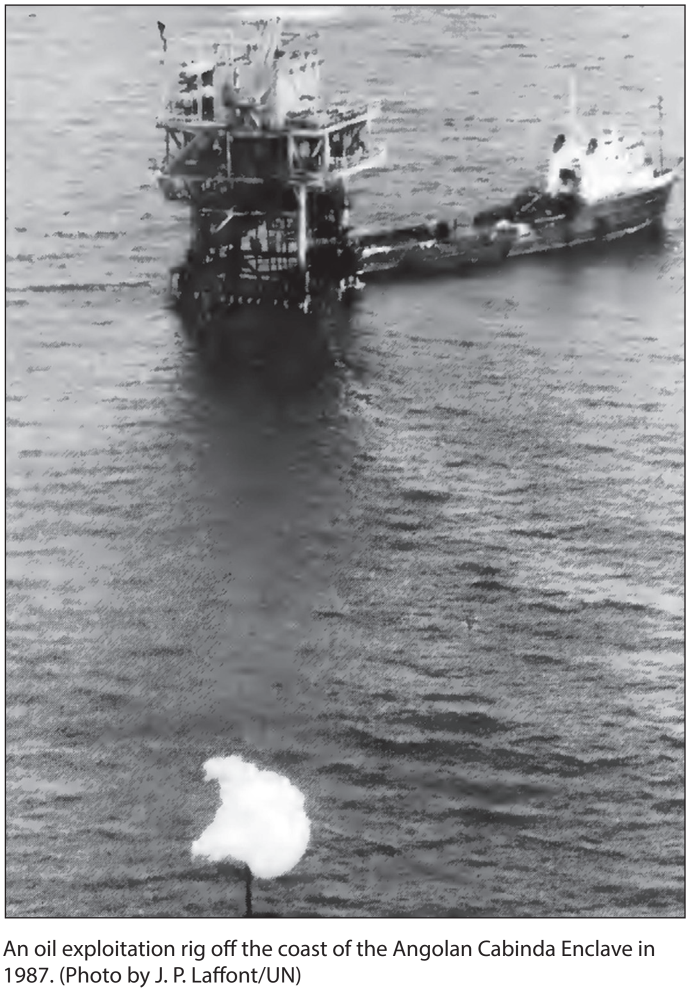
With Cuban aid and advice, by the end of 1976 the MPLA established itself in control of around 90 percent of Angola. However, it failed to completely neutralise the political and armed opposition, or at least drive it out of the country, and then made a mass of strategic mistakes, driving ever more of the Angolan population into the arms of the insurgency.

The smallest of the original three Angolan nationalist movements to fight against the Portuguese in the 1960s and early 1970s, during the early 1980s the National Union for the Total Independence of Angola (*União Nacional para a Independência Total de Angola*, UNITA) crystallised as the main and most dangerous opponent of the MPLA government and its allies. Primarily consisting of the Ovimbundu ethnic group (dominant in southern and eastern Angola), UNITA was initially supported by the PRC. From 1975, it became a recipient of gradually increasing amounts of aid from the Republic of South Africa (RSA), the United States of America (USA), and other Western powers. By 1985, UNITA's military wing – the Angolan Liberation Armed Forces (*Forças Armadas de Libertação de Angola*, FALA) – was not only trained by the South Africans but was also receiving the direct combat support of the South African Defence Forces (SADF) whenever necessary. With the organisation of FALA being described in detail in Volume 3, it is sufficient to say that as of 1987 overall command was still exercised by its Strategic Operational Command (*Comando Operacional Estratégico*, COPE), which controlled five fronts and 23 military regions. The mass of field forces consisted of part-time militia, organised into detachments of up to 150 troops, and totalling about 37,000 personnel by 1987. Gradually gaining in importance was the 'Strategic Force', which controlled about 40 semi-regular and regular battalions (each 250–1,000 strong), consisting of well-trained and disciplined light infantry, which reached a strength of about 28,000 by 1987. Finally, the insurgency had an artillery battalion, a unit operating a few captured T-34/85 medium tanks, at least five (later eight) penetration battalions (trained and equipped to operate well behind the enemy lines), and a well-developed network of training facilities.

Ruled by a minority of former European colonists with help of Apartheid – a system of institutionalised radical segregation based on ideology of white supremacy – the RSA was, at least officially, largely isolated on the international level, and subjected to an international arms embargo. In reality, the government maintained clandestine links to the USA, Israel, Great Britain, France, and Chile, and successfully presented itself at home and abroad as a 'bulwark against the Communist expansion into Africa': one of the cornerstones of its strategy of national defence was the prevention of establishment of a 'Marxist regime' by the South West Africa People's Organization (SWAPO) in the territory of South West Africa, which had been under the South African mandate since the time of the First World War. Establishing a system of major bases in southern Angola in the late 1970s, SWAPO and its military wing – the People's Liberation Army of Namibia (PLAN) – launched numerous incursions into South West Africa, in turn provoking the RSA into deploying the SADF into so-called 'externals': offensives of limited scale and duration into southern Angola. While most of the latter were designed to destroy bases or at least force SWAPO and the PLAN away from the border, they resulted in continuously increasing engagement of the local FAPLA garrisons by the SADF and the South African Air Force (SAAF). Moreover, from 1978 Pretoria resumed its support for UNITA with the aim of preventing the MPLA/FAPLA from enabling SWAPO/PLAN to operate inside South West Africa. Nominally at least, the Lusaka Accord of 1984 ended the RSA's involvement in Angola: however, the government in Pretoria remained determined not to be taken by surprise, and thus continued providing support to UNITA, just as the MPLA continued supporting SWAPO.

War of Interventions

Countless Western accounts have superimposed (and continue to superimpose) the Soviet role in Angola of the 1980s, and the related 'spread of Communism into Africa' – often to a degree where the Cuban military intervention is misinterpreted as 'undertaken on orders from Moscow'. Actually, the Soviets followed the Cuban military intervention of 1975–76 reluctantly and subsequently suffered the so-called 'mission creep': preoccupied with establishing themselves in positions of influence in Luanda, they ran a very slow build-up of FAPLA while trying to bring their own favourites into influential positions within the top ranks of the MPLA, with the aim of receiving permission to establish military bases in the country.



An oil exploitation rig off the coast of the Angolan Cabinda Enclave in 1987. (Photo by J. P. Laffont/UN)

Through all this time, the 'Marxist' government in Luanda actively sought cooperation with the 'reactionary' USA, and gradually began earning most of its income from sales of oil pumped by Western corporations from the oilfields in the Cabinda Enclave. While ill-advised administrations in Washington refused to cooperate with Luanda at earlier times, through the 1980s numerous US, British, French, and Portuguese corporations became ever deeper involved in the country. Ironically, at the same time clandestine US support for UNITA grew, despite its leftist, anti-imperialist, and anti-Western ideology, and although the growing success of the insurgency was obviously counterproductive, because it forced both Havana and Moscow to continue increasing their military presence. Simultaneously, both the governments of Cuba and the USSR were convinced they had to develop FAPLA not only into a counterinsurgency force, but also a major conventional force, capable of fending off possible invasions, especially by South Africa. The ultimate result was nothing but absurd: the government in Luanda maintained itself in power thanks to exports of oil, gas and diamonds to the West, while spending much of its income to convert the FAPLA into one of the largest conventional military forces on the African continent. The overspending for defence purposes reached such proportions that Luanda became unable to service its foreign debts: in 1986, a Cuban freight enterprise operating to and from Angola threatened to end services unless Luanda paid US$1.2 million in freight and charter expenses owed since 1 January 1986. Havana also pressured Luanda to provide crude oil as partial compensation for other services: despite objections by the Angolan state-owned SONANGOL oil corporation, and the Angolan Ministry of Energy, the Cuban state oil company began exporting Angolan oil to France, Switzerland, and Great Britain – and that at the time there was a major decline in oil prices on the worldwide market, forcing SONANGOL to slow down its exploration and exploitation plans because of the resulting financial limitations and budget deficit. Eventually, Soviet-made Mil Mi-17 and Mi-25 helicopters paid for by royalties from the export of Angolan mineral wealth flew protection of offshore oil-rigs owned and operated by Western companies (foremost Chevron, Conoco, and Texaco), which were paying taxes to Western governments supporting UNITA – and that at the time Luanda was actively seeking Western aid and investment. As the cherry on the cake, through the late 1980s, the USSR gradually established itself as one of the major foreign partners of the South African economy.[1]

1

Operation Moduler

As described in Volume 4 of this mini-series, the end of September 1987 marked the end of FAPLA's Operation Salute to October (*Operação Saludando Octubre*). Based on months of planning and nearly a year of preparations, this was the biggest conventional operation undertaken in Angola by that date, aiming to advance a major mechanised force from Cuito Cuanavale via the FALA stronghold in Mavinga, to the UNITA 'capital' in Jamba, in south-eastern Angola. Like several times before, Havana – and thus the MMCA – flatly refused to take part: the Cubans considered the plan entirely unrealistic because it envisaged an advance into an area under tight control of the insurgency and within the easy reach of the SAAF, while exposing the FAPLA supply chain to flanking attacks and ambushes. Arguing they knew better, the Soviets pressed on, and the Angolans followed their advice. The advance in the direction of Mavinga was slow and took months, enabling the South Africans to deploy a strong force into southern Angola: the resulting combination of SADF and insurgent formations checked the FAPLA advance and, in the course of the Battle of Lomba, mauled four of its brigades in early October 1987. On the 7th of that month, the High Command of FAPLA cancelled Operation Salute to October and ordered a general withdrawal to the River Chambinga.

South African Decision

Contrary to the mutual withdrawal after Operation Second Congress, in 1985, the end of Operation Salute to October marked no end of the campaign. During the meeting held inside southern Angola on 29 September 1987 between President P. W Botha, Defence Minister Magnus Malan and top SADF commanders, the decision was taken to pursue and destroy the Angolan brigades and, if practicable, seize Cuito Cuanavale, or at least eliminate the government presence east of the Cuito River, with the aim of preventing a renewed offensive on Mavinga in 1988. It was crucial to achieve this aim before 15 December 1987: not only because of the onset of the rainy season, but also because the mass of conscripts serving with the SADF were about to end their two-year-long military service. Correspondingly, Botha authorised the reinforcement of SADF units already involved in Operation Modular – and thus an escalation of the South African involvement.

Ironically, the leadership of the SADF was reluctant to exploit the green light they had received – foremost for the fear of casualties, but also because of concern that such an operation might trigger an all-out war along the entire border between Angola and South West Africa. Correspondingly, the SADF did not reinforce its units enough to allow a large operation that would attack Cuito Cuanavale from the west – where FAPLA had no defences: this would require the deployment of two full brigades deep inside Angola, which the already overstretched logistics could not sustain. The SADF thus had to run a series of limited attacks along the eastern axis. In addition to logistics-related issues, there was a need to provide the units already deployed in Angola with enough time to rest and refit their vehicles.[1]

Positions along the Chambinga River

However, this did not mean that the SADF intended to let the 16th and 21st BrI (*Brigada da Infantaria*), and the 59th BrIM (*Brigada da Infantaria Motorizada*) – nor the 1st and 2nd Tactical Groups – escape unscathed. Instead of their own units, the South Africans deployed six battalions of the FALA – including the 3rd, 4th, and 5th Regular, supported by its own 32nd and 61st Mechanised battalions – into a cautious pursuit. Moreover, SADF artillery and fighter-bombers continued to harass the retreating FAPLA. It was in this fashion that by 14 October 1987, G-5 towed guns of the SADF were brought into a position from where they could start shelling the air base of Cuito Cuanavale. Nor did the Angolans just retreat: by the end of October, their brigades had settled down into defensive positions south of the Chambinga River, where they were reinforced by the 66th Light Infantry Brigade (*Brigada da Infantaria Ligeira*, BriL), and a battalion of the 25th Infantry Brigade (*Brigada da Infantaria*, BrI) – which, however, lost about 40 percent of its troops to desertions in a matter of days. The easternmost of their position began at the southern bank of the Chambinga River, where the 16th BrI entrenched, while the 66th BrIL was protecting the single bridge crossing further west. South and west of them were the 59th BrIM, and the 21st BrI, and a light infantry battalion from the 66th BrIL. All units conducted active defence and launched a number of local counterattacks, the most successful of which took place on 1 November 1987, when the 21st BrI – reinforced by elements of the 59th BrIM and a company of tanks – mopped up the southern fringes of the perimeter, causing the Quebec Battery of the SADF to make a hasty withdrawal. However, three of the Samil trucks towing the G-5s got struck in the sand and were immobilised. When the Angolans were less than 1,000 metres away, the SADF was left without choice but to distract them with a counterattack by Combat Group Bravo. While not known to have caused any kind of casualties to either side (except for two damaged Ratels), this did manage to stop and distract FAPLA: during the following night, the South Africans managed to extract all their vehicles and guns.

After running careful reconnaissance of new Angolan positions, the SADF commanders detected several flaws. Foremost was that the rear communications of all five FAPLA brigades used the same bridge across the Chambinga River, which was also their only possible route of retreat. Furthermore, there were large areas separating their positions, enabling their highly mobile enemy to manoeuvre freely between them.[2]

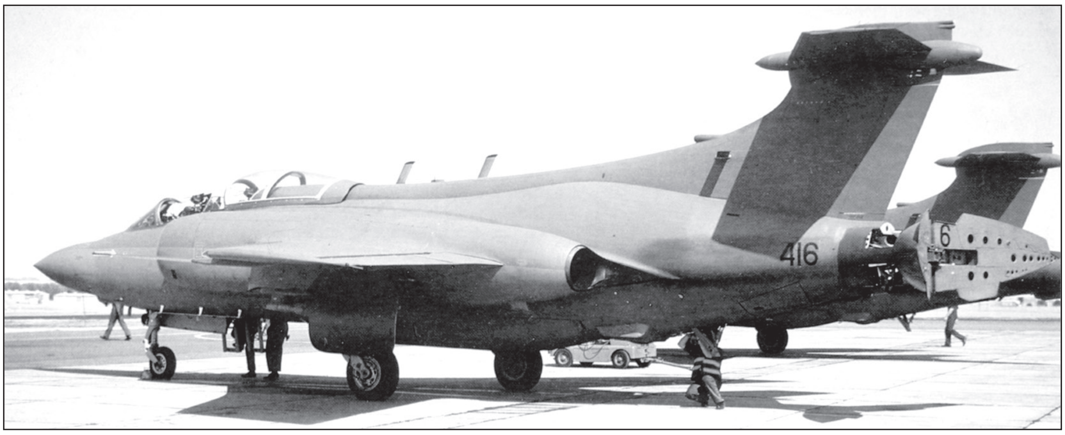
Victor Victor!

While on the ground the situation was favouring the SADF, the longer the fighting in 1987 went on and the closer to Cuito Cuanavale it moved, the more favourable was the situation in the air for the Angolans and Cubans. As described in Volume 4, MiG-23ML supersonic interceptors now operated in large numbers by the FAPA/DAA had proven themselves as superior in acceleration and turn rate at high subsonic- and supersonic speeds, and – especially – to be better armed than comparable aircraft in SAAF service. The Soviet-made R-23R/T and R-24R/T semi-active radar homing and infrared homing medium-range air-to-air missiles (ASCC/NATO-codename 'AA-7 Apex') supplied to Angola were in poor condition and regularly malfunctioned, but still outranged anything in South African arsenals. Moreover, the smaller R-60MK infrared homing, short-range air-to-air missiles (ASCC/NATO-codename 'AA-8 Aphid') proved capable of tracking targets from their forward hemisphere and thus outmatched similar weapons of the SAAF. Following several inconclusive engagements, all of this became painfully obvious on 27 September 1987, when a pair of Cuban piloted MiG-23MLs outmanoeuvred a pair of SAAF Dassault Mirage F.1CZs, and knocked out one of them, invaliding both the pilot and the aircraft out of action as a consequence.

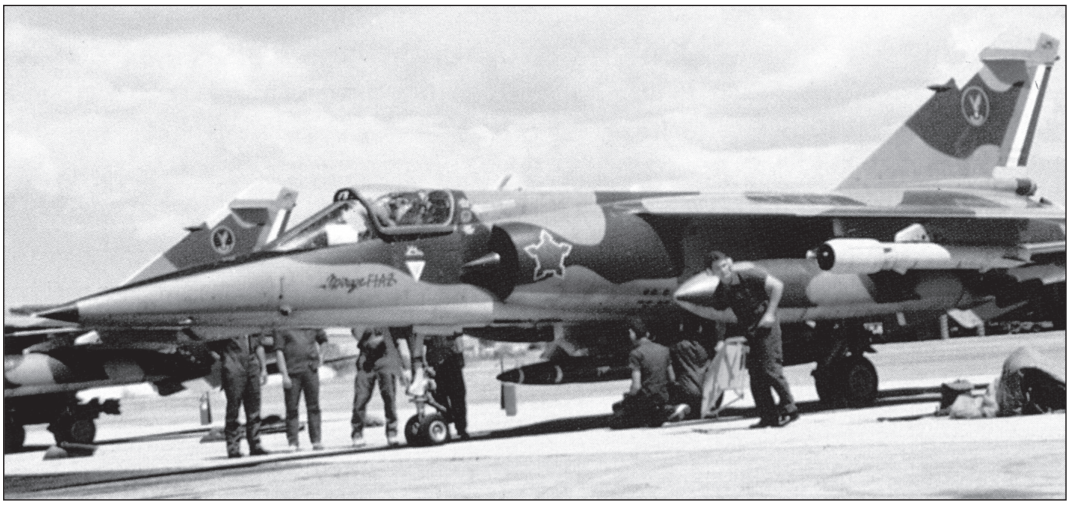
This single engagement left lasting impressions upon the South Africans: by day, they ceased operating almost all other types in SAAF service bar Dassault Mirage F.1AZs and F.1CZs (Nos. 1 and 3 Squadrons, SAAF, respectively) and Blackburn Aircraft/Hawker Siddeley Buccaneer light bombers (No. 24 Squadron) over Angola, and even these kept their distance from interceptors of the FAPA/DAA. That said, the factor dictating the tactics of pilots on both sides was the issue of fuel: as long as the battle was fought south of the Chambinga River, the situation was roughly equal. On average, both the MiG-21bis and MiG-23ML could remain airborne for about 45 minutes: as of November 1987, the FAPA/DAA had 10 MiG-23MLs and 24 MiG-21bis in operation, while the DAA/FAR contingent in Angola operated a total of 19 MiG-23MLs and one MiG-23UB.[3] From Menongue AB, they had about 12–15 minutes of flying time to the 200-kilometre distant battlefield, and no fuel reserves to circle the combat zone. South African Mirages had a better endurance, but usually operated from the more distant Grootfontein AB, over 400km away from the battlefield: the forward operating base in Rundu, located only 5km south of the border with Angola, was used in emergency only – for example when, after completing their task, some aircraft were too short on fuel to fly all the way back to Grootfontein. Buccaneers had the best endurance of all the fighter-bombers involved in this campaign, better electronic counter-countermeasures than the Mirages, and never experienced fuel-related issues: their principal disadvantage was that they were not meant to fight air combat and thus neither equipped with air-to-air missiles, nor with guns.[4] On the contrary: being the only fighter-bombers capable of deploying nuclear bombs and precision guided munitions, they were used exclusively for attacks on ground targets.

Alberto Ley Rivas (first from the left) – the Cuban pilot who knocked out a SAAF Mirage F.1 during the air combat on 27 September 1987, thus heavily influencing the flow of the air war for the following six months – with two colleagues in front of the MiG-21UB serial I21 at Lubango AB. (Pit Weinert Collection)

The situation changed – dramatically – as the battlefield moved ever closer to Cuito through October and November 1987, until it was over 500km away from Grotfontein AB but only 180km from Menongue, through the January–March 1988 period. From that time onwards, the SAAF was at a distinct disadvantage: MiGs could reach the battlefield within only 10 minutes, while – at least initially



In addition to the Mirage F.1AZ and F.1CZ, the third type deployed by the SAAF for air strikes in the Cuito Cuanavale area in late 1987 and early 1988 was the Buccaneer S.50. As the only nuclear-capable strike aircraft in service, Buccaneers received priority regarding equipment with advanced radar warning receivers and electronic countermeasures and were also equipped with H-2 glide bombs of South African origin, deployed to target – for example – the Cuito Cuanavale Bridge. (Albert Grandolini Collection)



A Mirage F.1AZ seen in late 1987 with the standard weapons configuration of this period. This included a ‘surfboard’ under the centreline, enabling the carriage of four bombs such as the Mk.81 (125kg) or Mk.82 (250kg), and a pair of RP.35 drop tanks on inboard underwing pylons. Clearly visible is the Italian-made ELT-555 electronic countermeasures pod installed on the outboard underwing pylon. (Albert Grandolini Collection)

– the South African air defences were limited to light anti-aircraft autocannons and MANPADs. This meant that Angolan and Cuban pilots were able to circle the combat zone at medium altitude – outside the range of enemy anti-aircraft weapons – while searching for suitable targets. On the contrary, the presence of numerous enemy interceptors and short- and medium-range surface-to-air missiles of the FAPA/DAA, forced the SAAF to fly even lower than before; at altitudes of 10–20 metres. Combined with the longer range to the battlefield, and flight time of more than 40 minutes from Grootfontein AB, this greatly limited their tactical options. Correspondingly, starting in November 1987, the SAAF began using its Boeing 707s converted as tanker-aircraft: Mirage F.1AZs and Buccaneer S.52s were equipped with in-flight refuelling probes and frequently refuelled by 707s while underway over the Rundu area. This increased their endurance to the degree where many of the air strikes were undertaken along routes to the north-east of the battlefield before the jets would ‘turn left’ to strike coming from an unexpected direction – from the north and in the direction of the south. Although every such mission remained highly challenging, these tactics limited the exposure to an interception to an absolute minimum, in turn also reducing SAAF losses.

Eventually, the FAPA/DAA and the DAA/FAR were thus left in possession of aerial dominance over the battlefield through late 1987 and all of 1988. However, they remained short of aerial supremacy and well away from aerial superiority. The principal reason was that even if including long-range surveillance- and early warning radars deployed in Cuito Cuanavale, the Angolan integrated air defence system for southern Angola – the *Região Aérea de Defesa Anti-Aérea Sul* (RA/DAAS) – was unable to track aircraft flying at altitudes as low as those at which the SAAF usually operated. Combined with the fact that MiG-23MLs (not to mention the older and shorter-ranged MiG-21bis) lacked the combination of equipment and endurance enabling operations independently from support by ground control, this meant that the SAAF remained capable of regularly striking targets close to Cuito Cuanavale – usually, with virtual impunity.

Lack of Offensive Capability

The traditional Soviet reluctance to bolster offensive capabilities – practiced since being imposed upon Egypt in the 1960s – and their insistence on equipping allies in Africa with defensive capability only, resulted in deliveries of MiG-21bis’ and MiG-23MLs only. Regardless of how much they were modified over time, the design of the MiG-21 was originally developed for high-altitude operations; the MiG-23ML was designed with low-altitude operations in mind, but for intercept purposes. In Angola both types were foremost deployed for ground attack, for which they were ill-suited. They lacked the necessary endurance (even under the best conditions, they rarely had enough fuel for more than 10 minutes of flying in the combat zone), and self-protection measures like chaff and flare dispensers, or armour; at 400–500km/h their lowest operational speeds were still too fast for the task; both had poor visibility outside of their cockpits; and they carried only limited numbers of bombs or unguided rockets. Neither the MiG-21bis nor the MiG-23ML were equipped with any kind of reconnaissance nor electronic warfare equipment, while although having five MiG-21Rs, the FAPA/DAA appears to have rarely sent these to scout for the enemy: instead, it often fell to the crews of MiG-21UM and MiG-23UB two-seat conversion trainers to fly visual reconnaissance, usually without any kind of photographs to work from and only insufficient maps of the combat zone. Under such circumstances, Angolan and Cuban pilots had very poor chances of detecting the enemy in time to deliver precise strikes.[5]

A still from a video showing a Su-20M of the FAPA/DAA on landing in Lubango AB. The small unit flying them saw a relatively short – but highly intensive – combat deployment to Menongue Air Base in late 1987 and early 1988. Eventually, constant problems with their engines and severe attrition resulted in the grounding of the few surviving examples and their replacement by Su-22M-4s. (Albert Grandolini Collection)

The sole dedicated ground attack type available as of October 1987 was Sukhoi Su-20M, a small squadron of which was operational as an element of the 9th Fighter-Bomber Aviation Regiment (*Regimento de Aviação de Caça-Bombardeiro*, RACB). However, this was home-based at Yuri Gagarin AB, in south-western Angola, under strict Soviet control, and suffered quite heavy attrition while working up: by November of the same year, only four Su-20Ms and a single Su-22UM-3K were still available, and thus the unit was only sporadically capable of deploying small detachments to Menongue AB.[6]

Finally, although contemporary South African sources repeatedly reported the deployment of MiG-21s and MiG-23s at Cuito Cuanavale AB, this was an extremely rare occurrence. Cuban and Angolan commanders considered it much too exposed and too small to securely house any kind of combat aircraft.

Zoom-and-Boom

While monitoring developments south of Cuito Cuanavale in late August 1987, the Cubans grew worried to the degree where Havana felt compelled to order the DAA/FAR to forward deploy a detachment of its MiG-21s and MiG-23MLs to Menongue Air Base and provide at least some support for the troubled FAPLA brigades. This is how it came to be that Cuban pilots entered the fray and two of them outfought a pair of Mirages on 27 September 1987. Over the following days and then weeks, the DAA/FAR contingent in Angola further expanded its presence in Menongue and especially its MiG-23MLs became a factor strongly influencing the developments on the battlefield. Unlike the pilots of the FAPA/DAA, who tended to fly high, and to release their ordnance from medium altitudes, resulting in low precision, as a result experiencing significant improvement of South African and insurgent air defences through the deliveries of US-made FIM-92 Stinger man-portable air defence systems (MANPADS), the Cuban pilots developed new tactical methods. They tended to approach the combat zone at medium altitudes before zooming down for the final phase of their bombing run and releasing parachute-retarded bombs from minimal altitudes and supersonic speed.

While negating the threat of Stingers, these tactics required extremely precise bomb release – which was usually impossible because of the lack of suitable target data. Theoretically, this was supposed to be provided by forward air controllers or artillery observers. Arguably, they were available both in the FAR and the FAPLA. However, because the insurgents were constantly roaming the areas around the Angolan brigades, none could deploy closely enough and long enough to start providing precise details on enemy positions. This meant that Cuban pilots had to search for their targets on their own: sighting well-camouflaged SADF positions from altitudes of 3,000–4,000 metres and speeds of 500km/h or more, while constantly critically short on fuel, was nearly impossible, while when underway at very high speeds very low over the ground, pilots were preoccupied with navigation, instead of searching for targets. Even in the few cases where they did have precise targeting data, the precision of their attacks depended on extremely precise timing of their bomb release: a millisecond too early or late usually resulted in a miss of 200–300 metres. Finally, the bombs and fuses designed and manufactured in the USSR and deployed by Angolan- and Cuban-flown MiGs were ill-suited for the soft and sandy soil of southern Angola: while the South Africans had developed sophisticated fuses that detonated their bombs above the ground, simple Soviet-made fuses detonated bombs on impact only, as the weapon was in the process of burying itself into the ground, thus greatly diminishing their lethal radius. Consequently, only a handful out of hundreds of air strikes was effective on average.

If all of this was insufficient, the SADF kept a crucial 'ace up their sleeve': never taking anything for granted, it sought to further lessen the precision of enemy air strikes through deploying their own forward air controllers with FALA insurgents in the proximity of the air bases of Menongue and Cuito Cuanavale. These provided early warning whenever any MiGs launched from one of these two bases: the code-phrase 'Victor Victor' was then aired to all the SADF units operating in the southern Cuito Cuanavale Province, warning them to stop, camouflage, and take cover – usually well before enemy jets were nearby.

Non-Appearance of Hinds

There remains a big question mark over one issue related to the air warfare in the Cuito Cuanavale area of Angola in 1987 and 1988: the non-appearance of heavily armed helicopter gunships of Soviet origin. As described in Volume 4, the FAPA/DAA began receiving its first Mil Mi-25s (ASCC/NATO-codename 'Hind') in 1984. Originally operated by one of the squadrons assigned to the Luanda-based 7th Air Transport Regiment (RATM), they were eventually regrouped into the 17th Helicopter Aviation Regiment (RAH), home-based at Huambo. For a while, this was a huge unit, operating a miscellany of about 70 helicopters, and known to have maintained detachments each of between two and four Mi-25s (as well as Mil Mi-8/17s and SE/IAR.316B Alouette IIIs) at Luena, Menongue, and even Cuito Cuanavale.[7]

In mid-1987, the FAPA/DAA is known to have received its first batch of improved Mi-35s. Indeed, according to unofficial Cuban sources, as of September that year, the 17th RAH had a total of five Mi-25s and 10 Mi-35s in operation, and more than enough Angolan and Cuban crews for them. Nevertheless, none of the available Angolan and Cuban sources mentions their deployment during the fighting south and east of Cuito Cuanavale through late 1987 or in 1988. A pair each of Mi-8s and Mi-35s – flown by pilots named by unofficial Cuban sources as (amongst others) Raúl Garcia, Duranza, and Smith – was deployed at the local air base, but they flew operations along the road to Menongue only.

The conclusion is that in the wake of heavy losses of Mi-8s, Mi-25s, and Alouette IIIs during Operation Second Congress in September 1985, and considering the inherent weakness of the RA-DAAS regarding detection of low-flying aircraft, the DAA/FAR and the FAPA/DAA concluded helicopters to be much too vulnerable

A pair of disused Mi-35s seen at Huambo AB sometime in 1992–95. Although still lacking exhaust diffusers, in 1989 or 1990 this variant at least received dispensers for flares, effective against MANPADs like the US-made FIM-92 Stinger and Soviet-made 9K34 Strela-3 (ASCC/NATO-codename 'SA-14 Gremlin'): less than two years earlier, FALA's possession of such weaponry, and the presence of SAAF interceptors, forced the FAPA/DAA to keep its Mi-25s and Mi-35s away from the battlefields in the Cuito Cuanavale area. (Albert Grandolini Collection)

for operations in high-threat areas south and east of Cuito Cuanavale. The sole exceptions to this rule were combat search and rescue (CSAR) operations. Indeed, while stressing that some air strikes – first by the FAPA/DAA and then by the DAA/FAR contingent in Angola – were undertaken without care for sufficient CSAR arrangements, Angolan and Cuban sources mention them only as flown if suitable rescue helicopters were not only available, but also ready to take-off at short notice, or even deployed and ready at several sites roughly half-way between Menongue and Cuito Cuanavale.[8]

Table 1: FAPA/DAA Order of Battle, October–November 1987

Wing	Squadron	Base	Commanding Officer
7th RATM		**Luanda IAP**	
	An-26 squadron	Huambo, Menongue	
9th RAC		**Lubango AB**	Captain João Baptista Costa
	MiG-21 squadron	detachments in Menongue and Cuito Cuanavale	Captain José Alexandre Dos Santos 'Celito'
	MiG-21 squadron	detachment in Luena	
	MiG-23ML squadron	Detachments in Luena and Menongue	Captain João Manuel da Silva 'Jojo'
	combined detachment (MiG-21, MiG-23, Su-22)	Menongue	Lieutenant José Maria Pinelas
17th RAH		**Huambo AB**	Captain José Catumbela[9]
	Mi-17 squadron	detachments in Luena and Cuito Cuanavale	
	Mi-25 squadron	detachments in Luena and Cuito Cuanavale	
	Alouette squadron	detachments in Luena and Cuito Cuanavale	
26th RACB		**Yuri Gagarin AB**	
	Su-20M squadron	detachment in Menongue	

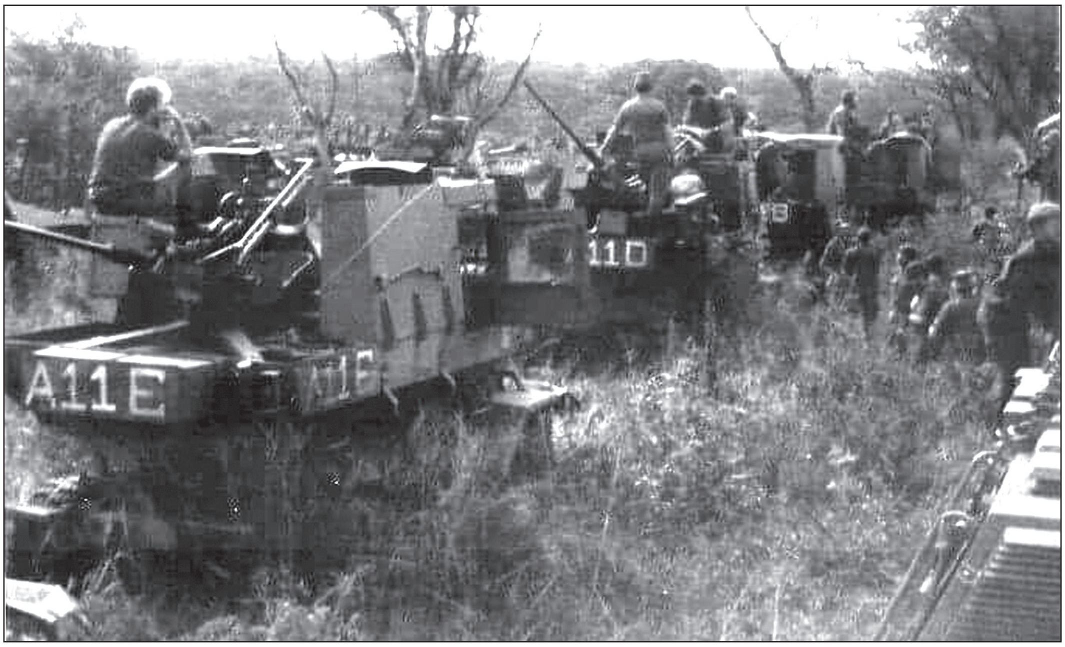
Table 2: DAA/FAR Contingent in Angola, October–November 1987

Wing	Squadron	Base	Commanding Officer
DAA/FAR contingent		HQ Luanda	Colonel Manuel Rojas, replaced by Colonel Carlos Lamas Rodriguez
25th RACB		Lubango	Lieutenant Colonel Manuel Rojas Garcia
	MiG-23ML squadron	Luanda, detachment of six in Luena	Major Eduardo González Sarria
	MiG-23ML squadron	Lubango, detachment of eight in Menongue, two in Cuito Cuanavale	Lieutenant Colonel Trujillo Herández
	MiG-21 squadron	six pilots in Menongue, detachment of two MiGs and pilots in Cuito Cuanavale	Captain Ramón Quesada Aquilar
Helicopter Detachment	Mi-8T	Huambo	Lieutenant Colonel Moya

Annoying MiGs

Despite advance warnings, MiGs and – occasionally – Sukhoi Su-20Ms of the FAPA/DAA, were a threat, considerably impeding South African operations, even more so because on some days, for example on 6 October 1987, they flew up to 60 strike sorties. David Mannall, who in 1987 served as Troop Sergeant with the 61st Mechanised Battalion observed:

> MiG and Sukhoi fighter jets were a constant annoyance; an almost daily presence during Modular…. Our best defence against the sting of Russian aircraft was Mother Nature herself. Mature forest typical of the area offered pretty



An Ystervark troop assigned to the 61st Mechanised Battalion Group, seen in Angola in 1987–88. Essentially, the Ystervark was a SPAAG based on the chassis of the Buffel armoured personnel carrier. (10 Anti-Aircraft Regiment, via the Youngsfield Facebook Group)

By 1987, all the remaining MiG-21MFs (delivered in 1975–76), and MiG-21PFMs (delivered in 1981), were operated by the 9th RACB of the FAPA/DAA. This Cuban pilot was photographed with two Angolan boys in front of the MiG-21PFM serial C54, a former mount of the Verde Olivo Detachment. (Albert Grandolini Collection)

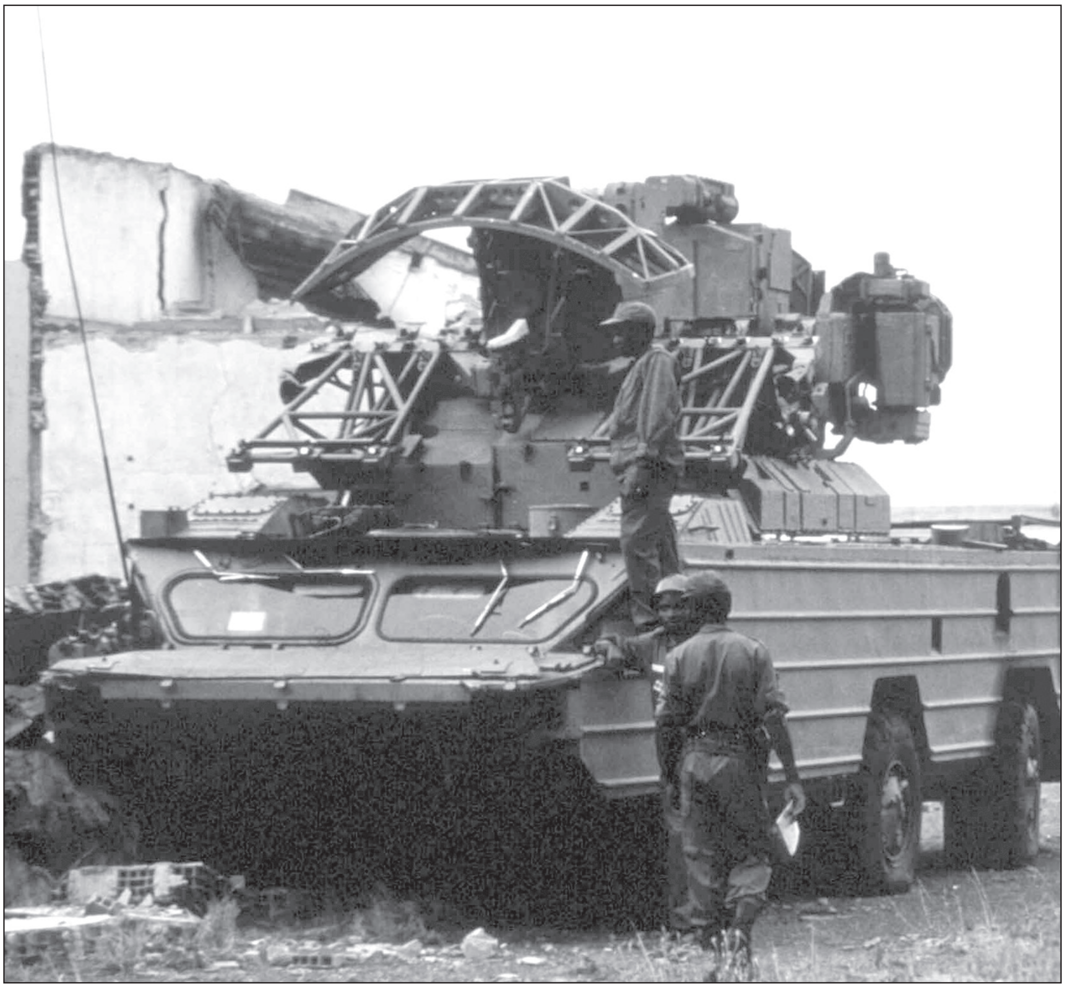
> good cover from air reconnaissance and, unless we were on the move or caught in an area of open *shona*, we became increasingly confident of our relative safety under the leafy blanket offered by a fairly extensive forest canopy…. Crew commanders guided their drivers to the most suitable trees, seeking those with sufficiently thick canopies, preferably with large overhanging branches making cammo nets easier to stretch over the Ratel's roof and protruding cannon. Hooked up onto a branch, the net created an artificial ceiling which blended seamlessly into the natural surroundings – at least viewed from 10–20,000 feet.[10]

Of course, no camouflage and concealment provided guarantee of safety. On 8 October 1987, a pair of Cuban-flown MiG-23MLs noticed the presence of several armoured vehicles, and then flew a slashing bomb run that, for once, proved devastating, as recalled by one of the SADF troops that witnessed the scene:

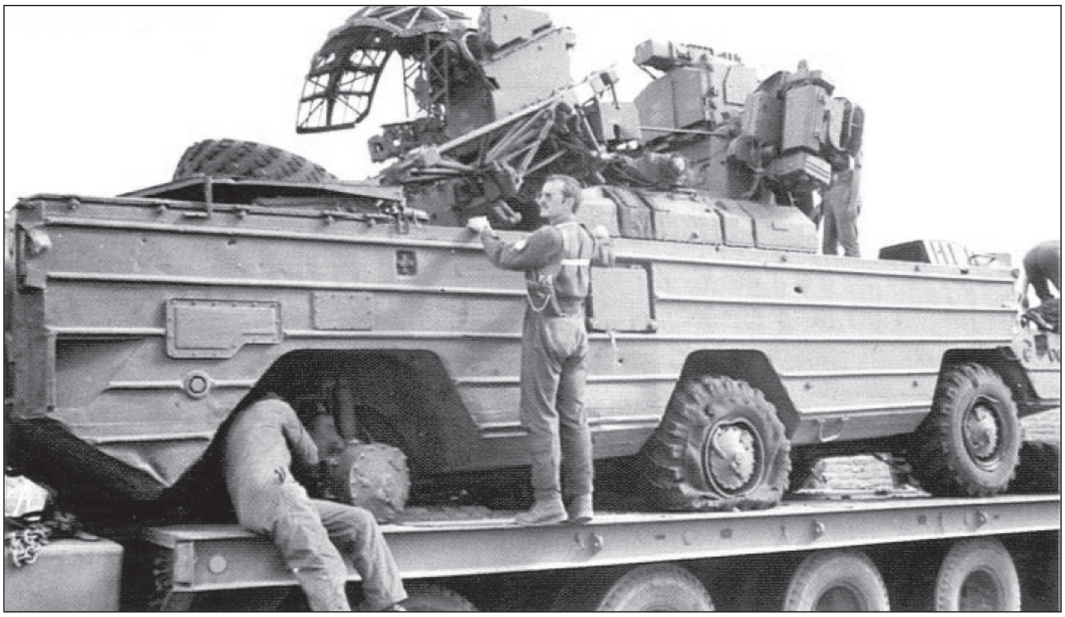
> An almighty, gut-rending roar tore the air, as if the sky had been ripped apart by Zeus himself! In less than a second a pair of MiG 23s shot directly overhead our position! So low, almost scything the treetops, disappearing as quickly as they'd appeared, now obscured by the canopy…. The pilots hugging the Angolan treetops so closely, their cockpits were less than 40 metres above our heads! ….There'd been no "Victor Victor" warning at all, which made no sense, but the most disturbing aspect of this incident was that we'd not even heard them coming. This had never happened before – we'd always heard fighter jets diving in from altitude on bombing runs.... Then it happened! Fast! They were on an identical flight-path, maybe ten or twenty metres higher altitude, not much more…. I was transfixed for what seemed an eternity as two parachutes blossomed then snapped to full size 40–50 metres above the ground, 200–250 metres directly ahead.[11]

One of the two parachute-retarded OFAB-500ShN 500kg bombs landed directly atop a Ratel-90 armoured car, completely destroying it, killing one of the crew, and wounding several others. To the luck of the South Africans, the wingman released his weapons a fraction of second too late, resulting in projectiles overshooting by about 300 metres. The MiG menace became even more troublesome because the SADF was forced to the conclusion that it lacked weapons to effectively counter them. It had a limited supply of captured 9K32 Strela-2 (ASCC/NATO-codename 'SA-7 Grail') and 9K32M Strela 2M ('SA-7b Grail'), a few towed twin 23mm Soviet-made ZU-23 autocannons, and its own Ystervark self-propelled anti-aircraft platforms usually armed with 20mm GAI-CO1 autocannons. However, the most effective remained the FIM-92A Stinger MANPADs. Operated by the FALA, these scored a series of kills in the second half of the month of October.

On 14 October 1987, a Lockheed L-100 transport (civilian version of the well-known C-130) operated by Zimex Aviation, was shot down about 40 kilometres from Cuito while underway from Bié to Benguela, with the loss of all six on board.[12] On 24 October 1987, a Stinger was used by FALA to shoot down the last of the original MiG-21MFs delivered to Angola in December 1975 and January 1976: the jet was underway south of the Tumpo River and flown by Captain Lorenzo Morales Ramos when hit. Its pilot was killed. On 28 October 1987, a MiG-21UM of the FAPA/DAA, crewed by Colonel Manuel Rojas and Captain Ramón Quesada was underway on a visual reconnaissance mission, when it overflew a FALA position protected by a team operating Stingers. A single missile chopped the MiG out of the skies, prompting the crew to eject: they landed safely under their parachutes and radioed for help, but a comprehensive combat search and rescue operation including two Mil Mi-8 helicopters with top cover from two pairs of MiG-23MLs, remained fruitless. Eventually, both Rojas and Quesada were captured by the insurgents, providing UNITA with a major propaganda boost: Colonel Manuel Rojas was the commander of the DAA/FAR contingent in Angola at the time.[13]



A 9A33BM3 TELAR of the 9K33M3 Osa-AKM SAM system of the 52nd Air Defence Brigade, FAPA/DAA. This vehicle was photographed with its fire-control radar in the folded-down position, and without any of the missile containers that also served as launchers. (Albert Grandolini Collection)



A 9A33BM3 TELAR of the 52nd Air Defence Brigade captured during the Battle of Lomba in October 1987, seen while being collected from the battlefield by the South Africans. (Albert Grandolini Collection)

Onslaught through the Bush

For much of mid-October 1987, the SADF was busy both with preparations for the continued offensive, and with extracting all the loot from the Battle of Lomba. The latter included at least one largely intact 9A33BM3 transporter-erector-launcher and radar (TELAR) of the 9K33M3 Osa-AKM mobile SAM system (ASCC/NATO-codename 'SA-8 Gecko'). This belonged to the 52nd Air Defence Brigade (*Brigade da Defese Anti-Aérea*, BDAA) of the FAPA/DAA, which had two of its batteries deployed in support of FAPLA units involved in the failed Operation Salute to October. Related South African efforts were repeatedly disrupted by Angolan air strikes and artillery barrages. Nevertheless, the SADF eventually managed to extract the vehicle to Mavinga, from where it was flown out to South Africa by a Transall C.160 transport of the SAAF. Furthermore, the South African Air Force sought to keep FAPLA under pressure through air strikes on selected targets inside and outside the immediate combat zone. On 13 October 1987, a total of six Mirage F.1AZs and six Buccaneers hit a FAPLA supply convoy underway from Menongue to Cuito Cuanavale. A day later, two Buccaneers repeated the exercise. On 17 October, a total of 16 Mirage F.1AZs and F.1CZs bombed the withdrawing FAPLA units in the Cunzumbia

A Flight into Captivity[14]

After taking part in the Battle on the Lomba River, in late September and early October 1987, Captain Ramón Quesada Aquilar was suffering from back-problems and hospitalised. As soon as he got slightly better, a decision was taken to send him back to Cuba for rest and recuperation. However, Quesada Aquilar barely reached Luanda International before receiving the order from Colonel Carlos Lamas Rodriguez to travel to Luena and reinforce a detachment of six MiG-21s from his squadron forward deployed there. Accepting without complaints, the Cuban squadron commander thus jumped onto one of the An-26s carrying supplies to the forward air base.

Centre section of a MiG-21UM (serial number I12) of the FAPA/DAA, seen in the early 1990s with a Soviet instructor in the rear cockpit. Although such dual-control jets were considered a precious asset due to their importance as training tools, circumstances during the war were often such that they had to be armed and flown on operational sorites. (Albert Grandolini Collection)

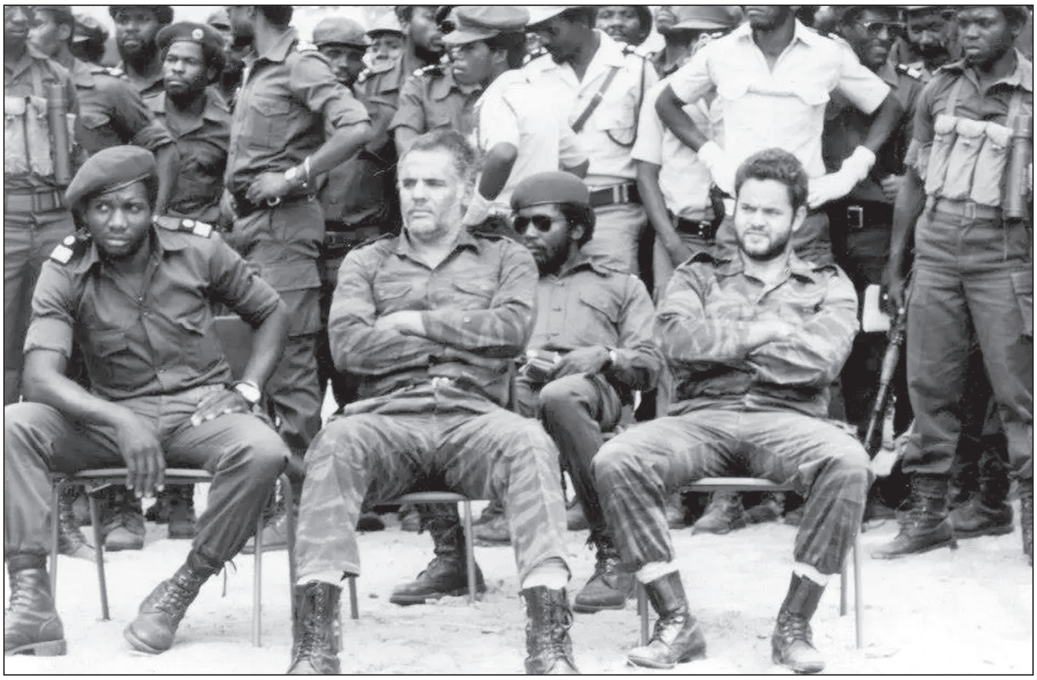
Having not flown for a while, once in Luena, Quesada Aquilar had to refresh his skills on the MiG, and a decision was taken for him to make a continuation-flight on the MiG-21UM serial I10, with Colonel Rojas Garcia in the rear cockpit. Captain Eduardo Sarmiento was to escort them in a MiG-21bis. Although a training mission, the flight was to be undertaken under combat conditions, because of the insurgent activity around Luena. Indeed, due to fuel shortages caused by insurgent attacks on supply convoys, the decision was taken to change the character of this test flight to one of combat reconnaissance, and both aircraft were armed. Finally, just as the two crews were about to head for their aircraft, on the morning of 28 October 1987, Rojas was approached by Captain Lucio – an intelligence officer attached to the HQ of the 3rd Military Region – with a request to check reports about a concentration of insurgents north of Luvei. Rojas accepted and the two jets departed Luena. Amazingly enough, immediately after take-off, both Quesada Aquillar and Sarmiento following them violated the standing order to climb to an altitude of 2,500 metres because of the MANPAD threat. Instead, even 25 kilometres from the point of departure, they were still underway at an altitude of only 1,000 metres. None of FALA's anti-aircraft teams was around that day, and thus the two MiGs continued their flight unmolested, gradually climbing to the altitude of 4,000 metres. After finding the positions of a FAPLA brigade protecting Luvei, they turned south to search for insurgents. About 20 kilometres further, they found the area indicated by Captain Lucio, and Rojas advised Quesada Aquilar to dive and drop the two FAB-250M-62 bombs at a specific point. Sarmiento in the other MiG was to remain at the altitude of 4,000 metres to watch over them.

As Quesada Aquilar entered the dive, Rojas realised that the squadron commander in the cockpit in front of him had misidentified the target and took over the controls to reroute the aircraft. He pulled up into a climbing turn, handing the controls back to Quesada Aquilar only once the latter had positively identified the target. However, by the time the MiG-21UM entered a new dive, Sarmiento reported having lost visual contact with it. Ignoring this important warning, Rojas and Quesada Aquilar

area, south of Cuito Cuanavale, and claimed the destruction of an entire ZRK-BD Strela-10 SAM site (ASCC/NATO-codename 'SA-13 Gopher') assigned to the 59th BrI of FAPLA. Two Cuban piloted MiG-23MLs are known to have been scrambled in reaction, but they failed to catch any of the low-flying Mirages. Late in the afternoon of 18 October 1987, two flights of Mirage F.1Azs hit the 59th BrI again, followed by a total of 12 Mirages that bombed this and other FAPLA units on the morning of 19 October. At dawn of 20 October, Mirages and Buccaneers hit the positions of the 2nd Tactical Group in the Mianei area, where one of FAPLA's SA-8 SAM sites was deployed. The latter returned fire but missed. The FAPA/DAA and the DAA/FAR contingent at Menongue returned the favours later during the same day, and again on 24 October 1987, when bombing the SADF units concentrating for their new offensive. This action in turn prompted the SAAF to scramble several Mirages in an attempt to distract the Angolans and Cubans and force them to re-arm their fighter-bombers for air combat instead. Moreover, G-5 guns of the SADF shelled Cuito Cuanavale AB, claiming several 'MiGs' as destroyed in the process.[16]

On 25 October, two MiG-23MLs attacked FALA positions about 10km south of the Chambinga Bridge, while the SAAF hit back later the same day by sending two flights of Mirage F.1AZs in a strike on a FAPLA supply convoy in the area of the Chambinga River Bridge. A day later, the G-5 guns shelled Cuito Cuanavale AB again (this time claiming two Mi-25 helicopters as destroyed, although actually causing no such damage), while two Buccaneers and four Mirages bombed the positions of the 16th BrI on 28 October. The SAAF further reinforced its strikes on 29th and 30 October, and

A MiG-21UM (serial number I13) taking-off from Lubango AB. (Albert Grandolini Collection)



Colonel Rojas Garcia (centre) and Captain Ramón Quesada Aquilar (right), seen while held captive by UNITA. They were released on 23 August 1988 and greeted by Fidel and Raoul Castro on return to Havana on 28 October of the same year. (Mark Lepko Collection)

went in and released their weapons. They encountered no ground fire on the way down, but as the jet pulled up again, while underway at only 300 metres above the ground, it received a missile hit. The MiG flipped out of control, leaving Rojas and Quesada Aquilar no option but to activate their ejection seats.

Both landed under their parachutes only seconds later, recovering from the shock of ejection and their hard landings just in time to realise a group of insurgents was rapidly approaching. Abandoning all their equipment – including the Komar survival radio and rescue beacon – Rojas and Quesada Aquilar ran away: they were certain that Sarmiento had seen what had happened to them and would call a rescue party from Luena, only 40–50 kilometres away. The latter actually realised what happened only once he saw a thick column of smoke rising from the place where the doomed MiG-21UM hit the ground. Meanwhile, the two downed fliers were running at their best speed to keep their distance from the pursuing guerrillas.[15]

Certainly enough, the first Mi-8 with the rescue party on board appeared just 15 minutes later. Rojas and Quesada Aquilar heard the noise of the approaching helicopter but then had to watch as it began receiving ground fire, and had to fight back with its UB-16-57 pods with 57mm S-5 unguided rockets. Eventually, the helicopter was badly damaged and the crew had no choice but to leave the area, eventually making an emergency landing in Galapo. About an hour later, another helicopter arrived, only to receive ground fire and withdraw long before it could find the two downed airmen – who also could not contact its crew because they had left their survival equipment behind. Disappointed and frustrated, Rojas and Quesada Aquila continued their escape in a northern direction throughout the day and the following night, hoping they might reach FAPLA positions in the Galapo area. Entirely exhausted, early the next morning they ran into an insurgent patrol and were promptly captured: both ended as prisoners of war in a UNITA prison outside Jamba.

then on 1st, 3rd, 5th, and 8 November 1987, primarily focusing on positions of the 16th BrI, its tanks and air defence systems. Almost every single time, the Cubans scrambled their MiG-23MLs from Menongue in response, but all their attempts to catch the enemy fighter-bombers remained fruitless.

Amid continuous action in the sky, the SADF completed its build-up. For example, on 30 October 1987, the 4th South African Infantry (4th SAI) – a complete, regular mechanised battalion – reached the Mavinga area. The unit included two companies mounted on Ratel-20 infantry fighting vehicles (IFVs), one armoured squadron with Ratel-90s, a support company equipped with Ratel-90s, Ratel-81s, and Milan anti-tank guided missiles, a battery of 120mm mortars, and a troop of Ystervark SPAAGs for air defence. Moreover, the 4th SAI was reinforced by a squadron of 13 Olifant main battle tanks (MBTs), a battery of G-5 towed guns, a troop of four G-6 155mm self-propelled howitzers, and a troop of Valkiri multiple rocket launcher systems (MRLS): in total, that was around 3,000 officers and other ranks, 13 MBTs, nearly 100 Ratels, roughly the same number of Buffel and Casspir mine-protected, ambush resistant (MRAP) vehicles, sixteen 155mm guns, and 12 MRLS. During the following days, the 4th SAI was reorganised into three combat groups, still named Alpha, Bravo, and Charlie, but each further reinforced by a single battalion from the FALA. Altogether, the resulting Task Force 10 thus had more firepower available than all the FAPLA brigades deployed along the southern side of the Chambinga River and was much more mobile in the local terrain.[17]

Table 3: SADF Order of Battle, Operation Moduler, November 1987[18]

Unit	Equipment	Notes
Combat Group Alpha		CO Commandant Mike Muller
61st Mechanised Battalion		minus one mechanised infantry company
Armoured Car Squadron	Ratel-90	
Mechanised Infantry Company	Ratel-20	
Support Company	Ratel-20, Ratel-81, Ystervark	
Combat Group Bravo		CO Commandant Rovvie Hartslief
Motorised Infantry Company	Buffel	drawn from 32nd Battalion
Motorised Infantry Company	Casspir	drawn from 101st Battalion
Motorised Infantry Company	Casspir	drawn from 101st Battalion
Mechanised Infantry Company	Ratel-20	drawn from 61st Mechanised Battalion
Motorised Infantry Company	14+ Casspir	drawn from 101st Battalion
Anti-Tank Squadron	Ratel-90 & ZT-3	
Support Company	Ratel-81, Ystervark	drawn from 32nd Battalion
Combat Group Charlie		CO Commandant León Marais
Tank Squadron	Olifant	
Armoured Car Squadron	Ratel-90	drawn from 4th SAI
Mechanised Infantry Company	Ratel-20	drawn from 4th SAI
Mechanised Infantry Company	Ratel-20	drawn from 4th SAI
Motorised Infantry Company	Buffel	drawn from 32nd Battalion
Motorised Infantry Company	Buffel	drawn from 32nd Battalion
Support Company	Ratel-81, Ystervark	drawn from 4th SAI
20th Artillery Regiment		CO Colonel Jean Lausberg
P Battery	Valkiri	attached to Combat Group Bravo
Q Battery	G-5	attached to Combat Group Charlie
R Battery	120mm mortars	
S Battery	G-5	attached to Combat Group Alpha
I Troop	Valkiri	
J Troop	G-6	

Bloody November

Aiming to annihilate the 16th BrI, south of the Chambinga, the South Africans had concentrated Combat Groups Alpha and Charlie in front of it, while Combat Group Bravo was to conduct diversionary actions to the west, thus keeping other enemy units busy. The plan envisaged that once the 16th BrI was destroyed, two combat groups were to dash straight for the sole crossing on the Chambinga, seize it and thus force other FAPLA units to either surrender or be annihilated.[19]

The three battle groups reached their launching positions on the evening of 8 November, and opened their attack the next morning. In the south-west, Combat Group Bravo conducted a number of feint attacks which fixed the 21st BrI and the 59th BrIM in their positions. However, this effort did not prove as effective as expected. Arguably, when the 21st BrI launched its counterattack on the afternoon of 9 November, Combat Group Bravo avoided it by a quick retreat. However, the FAPLA commanders still found the time to think about the situation of the 16th BrI and order the 2nd Tactical Group to reinforce it. The problem was that it was too late by the time this unit arrived. Indeed, at dawn on 9 November, the SADF subjected the ill-fated 16th BrI to a 10-minute-long artillery barrage, followed by a strike of SAAF Mirages, around 06.30hrs. However, the evening before, the commander of the 16th BrI – who became extremely cautious after all the recent air strikes on his unit – had reshuffled his troops. Unsurprisingly, the South Africans were slow in finding out about this fact and this not only diminished the effects of their preparatory barrage, but also caused them a series of problems. Combat Group Alpha attacked the south-eastern flank of the 16th BrI but had to quickly withdraw when signals intelligence (SIGINT) realised it had a full company of Angolan armour, reinforced by anti-aircraft guns, held in reserve deep on its flank. Meanwhile, Combat Group Charlie – screened by FALA infantry and with a company of the 32nd Battalion as vanguard – attacked from the north. The 32nd quickly overran the first Angolan positions but was then pinned down by heavy defensive fire. Moreover, armoured units behind it lost their directions in the dense bush. Eventually, instead of rolling through the position of the foremost SADF battalion to assault the central enemy position, the main force of Combat Group Charlie was redirected to attack the Angolan reserve, before resuming its original attack later during the morning. Rather unsurprisingly, it never developed that far: the carefully planned engagement converted into a wild melee, in which the Angolan infantry put up determined resistance supported by mortar fire and several platoon-sized counterattacks by their T-55s. With the thick bush restricting the vision of combatants on both sides, several encounters at minimal ranges took place: in one case, a Ratel-20 managed to knock out a T-55 with its 20mm autocannon, only to be destroyed by a shell from another Angolan tank immediately after. Elsewhere, a T-55 immobilised one of the Olifants with a hit from its 100mm main gun that severed the tracks and destroyed one of the wheels. However, just as during the Battle on the Lomba River, eventually the superior South African firepower and persistence won the day: one after the other, Angolan positions were knocked out – by a combination of attacks from short range and SADF artillery. The G-6s of Juliet Troop, for example, fired 760 15mm shells that day. After three hours of bitter fighting, the 16th BrI began to break: while some of its elements continued to hold their positions, the bulk of the brigade began withdrawing. By then Combat Group Charlie was largely out of ammunition and forced to withdraw. As recalled by Aleksandar Kalan, who was with the unit on 9 November, the 16th BrI thus came away from the death trap:

> The South African troops were in front of us. At 15.00hrs, intense artillery preparation began against our brigade. At 17.00hrs, the first troops appeared in their Eland [sic] armoured vehicles. The direction of their attack as our previous position. It seems they did not know that we had changed out defence area. Only one battalion with six tanks and several vehicles remained in the earlier position. The tactical group advanced to help us.
>
> At 15.00hrs, we could hear the sound of engines five kilometres away. The brigade was placed on alert, and then the reconnaissance group reported South African motorised infantry. Major Batishte [Deputy Commander of the 6th Miliary District, FAPLA] reacted by deploying the tactical gropu. The enemy surrounded the brigade and attacked the second battalion. The latter, headed by the Chief-of-Staff [16th BrI], stood on the defence, supported by six tanks. Five tanks were burnt, but the Chief-of-Staff withdrew with the sole survivor, his only command vehicle, and about 67 survivors. All communication with him was then cut off.
>
> After that, the enemy attacked our major force. The brigade began to retreat. The brigade commander stopped the desertion and extracted the brigade from its encirclement. The brigade fought its way to the new positions. Casualties were still being assessed. The brigade failed to withstand the enemy attack and retreated. The I and III Battalions were scattered, there was no communication with them. The enemy losses were three Eland [sic], and one Casspir personnel carrier.[20]

Contrary to what this recollection might imply, the South Africans were not only taken by surprise by the reshuffle of the 16th BrI, but also by its aggressive reaction. Indeed, not only FALA but even the SADF suffered heavier casualties than during the very similar battle of 3 October 1987: seven troops were killed, nine wounded, one Ratel-20 was destroyed and another damaged, as was one Olifant. Arguably, the 16th BrI lost most of its heavy equipment, including 13 T-54/55s, two BM-21s, four ZU-23s, and 30 trucks destroyed or captured. It suffered a loss of 75 killed and four captured, and an unknown number of defectors, and was down to 547 officers and other ranks after the battle. However, it was still cohesive and fighting: indeed, the commander led his troops to the Chambinga River Bridge, and then ordered them to entrench on its southern approaches – although down to the last remaining AGS-17 automatic grenade launcher, a few RPG-7s, and seven trucks.[21]

Collision with the 2nd Tactical Group

After battering the 16th BrI, the command of Task Force 10 refocused its attention on the 2nd Tactical Group, FAPLA. This unit was already down to eight operational T-54/55s, but still included at least two companies of crack airborne troops, reinforced by several anti-aircraft guns. By the evening of 9 November, it entrenched on the high ground at Viposto, close to the sources of the Hube River. After replenishing, Combat Groups Alpha and Bravo spent 10 November with moving to their new starting positions, while the artillery of Task Force 10 unleashed 1,134 155mm shells and more than 1,000 127mm rockets upon the Angolan unit.

The new South African attack began at dawn of 11 November, following almost the same pattern as two mornings earlier. While ground troops were still approaching enemy positions, at 07.00hrs, SAAF Mirage F.1AZs bombed the main position of the 2nd Tactical Group. Then, Combat Group Bravo initiated a diversionary attack on the 21st BrI and the 59th BrIM in the west, while Combat Group Alpha did the same against the positions of the 2nd Tactical Group from the north-west, however, Combat Group Charlie – the main striking force – was delayed by extremely dense bush, and then found itself exposed to several air strikes. Although these caused no damage, they did force the South Africans to stop and camouflage themselves: indeed, two pairs of MiG-21bis of the FAPA/DAA narrowly missed an air combat with two pairs of Mirage F.1CZs sent northwards in a fruitless attempt to decoy attention of Angolan and Cuban pilots.

This caused a delay of several hours which the Angolans exploited to abandon their thinly held first line of defence and withdraw to the well-fortified second. When Combat Group Charlie finally resumed its advance, it quickly seized the vacated positions and then had to reorganise itself before attacking again. At that point in time, another air strike by six Mirage F.1AZs hit the Angolan positions to claim a number of tanks destroyed, but it was already late: after several hours of advancing through the thick bush and soft soil, the South African infantry was exhausted and in need of rest. The advance came to a halt. Precisely at that point in time, the Angolans counterattacked with anti-aircraft guns and mortars, causing numerous casualties. The South Africans reacted by pouring immense volumes of automatic 12.7mm and 20mm fire into the bush, before organising a counterattack with the Olifant squadron in the front, followed by Ratel-20s and the dismounted infantry. This triggered another Angolan counterattack, and the battle once again degenerated into a melee at very short ranges, in which several T-55s and a single Ratel-20 were destroyed.

Having achieved the breakthrough, Task Force 10 then rushed Combat Team Alpha to the scene, aiming to finish off the 2nd Tactical Group. However, this time the Olifants, followed by Ratels, drove into a minefield where one of the MBTs and one of IFVs were immobilised. To make matters worse, the Angolan unit was anything but broken, and in the process of being reinforced by another FAPLA force, assembling a few kilometres to the rear. Indeed, the Angolans took the two stranded South African vehicles under fire from their snipers, artillery, and T-54/55 tanks – one of which destroyed the damaged Ratel. Eventually, the vanguard of Combat Team Alpha managed to extricate itself from the minefield and assault the enemy line covering it, causing the Angolans to withdraw. However, that was the end of this battle as both the involved SADF units had exhausted their ammunition, and night was approaching. Overall, by the end of 11 November, the 2nd Tactical Group had taken a similar beating to that of the 16th BrI, two days earlier. It lost all of its remaining MBTs, three other armoured vehicles, three anti-aircraft guns, and 12 trucks (virtually all of its heavy equipment). However, it completed its task in preventing Combat Groups Charlie and Alpha from punching through and then launching a pursuit, and inflicted serious losses: the SADF lost five killed, 19 wounded, and had to write off two Ratel-20s.[22]

The Great Escape

In early November 1987, the HQ of the 6th Military Region, FAPLA, concluded that its forces south of the Chambinga River were much too exposed. Correspondingly, during the night of 8 to 9 November, the 59th BrIM began withdrawing north, and was entirely across the bridge by 13 November. The isolated battalion of the 66th BrIL followed in fashion, joining the parent unit near the bridge. The 2nd Tactical Group followed after 11 November, even though still digging-in on the southern bank on the approaches to the bridge, reinforced by the remaining T-54/55s of the 59th BrIM. Thus, only the 21st BrI remained south of the river, reinforced by a single battalion of the 25th BrI: this remained in its original position thus covering the withdrawal of other units.[23]

Although one could expect the South Africans to strike first, because they were in 'hot pursuit' of the withdrawing enemy, the SADF was shocked when, late in the afternoon of 13 November, the 21st BrI suddenly moved out of its position and covered around 20 kilometres in the course of a nocturnal march, the following night. Even so, the Angolan unit was hampered by its march route, for it had to cross both the Vimpulo and Hube rivers before actually reaching the Chambinga Bridge. Therefore, Task Force 10 pushed hard to intercept it.

Calculating that the best crossing over the Vimpulo River was the Sandumba Ford, Combat Group Charlie was rushed in that direction, and ordered to set up an ambush. However, due to a navigational mistake by night in the thick bush, the South Africans took up positions six kilometres away from the ford. Moreover, a violent storm erupted during the night of 14–15 November, and thus the Angolan unit managed to cross the first obstacle unobserved: the SADF realised this only once it was too late. Instead of merely pursuing the enemy, Task Force 10 then rerouted Combat Groups Alpha and Charlie to the Hube River, aiming to set up another ambush on the western bank near its source, at a point the 21st BrI was expected to pass. The two South African units spent the night of 15–16 November rushing in that direction, and Combat Group Charlie approached its intended positions in time: marching exactly as expected by the South Africans, the 21st BrI reached the river, failed to cross it and then turned for its source, intending to travel around it. At that point in time, Combat Group Charlie ran into a previously unknown minefield. In order to pass this obstacle, it had to make use of mine-clearing charges. Their detonations warned the Angolans about the enemy presence ahead: instead of attacking from the flank, the South Africans now had to initiate a head-on confrontation – resulting in an extremely brutal and confused 'meeting engagement'.

The Angolans moved first, pushing their armour forward while searching for the enemy. Amid the initial exchange of fire, one of the FAPLA BM-21s managed to fire its entire load of 40 rockets into several SADF vehicles stranded inside the minefield, only a few hundred metres away. Amazingly enough, the salvo destroyed just a single Rinkhal ambulance bus. Immediately after, Angolan mortars and additional BM-21s plastered the positions of Combat Group Charlie with well-directed fire, causing numerous casualties, and then the Angolan infantry began infiltrating the enemy line, while their engineers began a desperate attempt to construct a causeway across the floodplain of the Hube River. Calling on Combat Group Alpha – which served as reserve – helped the South Africans stop the Angolan assault and push the enemy back. Lieutenant Colonel Anatoly Mikhailovich, head of the SMMA team assigned to the 25th BrI then managed to establish a defence line by deploying this brigade's reconnaissance company and a battery of six ZU-23s, whose firepower stopped the South African counterattack. Lieutenant Colonel Igor Anatoliyevich Zhdarkin provided a gruelling account of his experience on that day:

> On 16 November (1987), at 06.00hrs, we formed a column and stood waiting to begin our march…. Then began a bombardment the like of which we, in truth, had as yet never experienced. Shells exploded in salvoes. Everyone was confused, panicked and tried to run away and find shelter anywhere they could. But the South Africans beat them black and blue. The shells rocked our troop carrier from side to side. In fact, the South Africans bombarded a very large area because it took us about 40 minutes to escape the zone of fire….
>
> At last, our brigade commander appeared and began to restore order. He set up an assembly point and gave orders. With great difficulty, we reassembled the column and marched to the River Hube. And right there the South Africans attacked us from their prepared positions again. As we'd assumed, they had prepared themselves well and our brigade was suddenly pinned down in the *shona*, the swampy area close to the river. In front of us, the enemy was positioned in a semi-circle, while to our rear was this cursed *shona*: no vehicles could drive through it, the only way would be to lay temporary road of logs and brushwood first. Panic broke out as the enemy launched an intensive bombardment and the Angolans fled on foot through the *shona* to the other bank. Only the appearance of the brigade commander made them stop. He rushed up and down along the whole brigade from front to rear shouting and cursing, making demands, giving orders. The battle continued at the front. A small group of Angolans pressed back an enraged onslaught by the South Africans while the entire brigade stood practically in the swamp with eyes popping in fear and trembling hands. They crowded onto the bank, ready at any moment to throw away everything and run. The commander ordered the men to construct the temporary brushwood road, to divert their attention from the raging battle. This gave them something to do other than stay rooted in the swamp. A small detachment was sent to the other bank to cover a possible repeat of the last enemy assault.
>
> The bombardment and the attacks persisted with only short interruptions. We prepared for the very worst. We collected our knapsacks and burnt a number of secret documents and papers. It was resolved, in case the South Africans broke through, to burn our armoured troop carrier and our armoured patrol car together with the other two cars, and go on foot through the *shona* on to Cuito Cuanavale.
>
> The vehicles of our brigade began to go in circles, trying to evade incoming shells. We sat in our armoured troop carrier, wet like small puppies from the terrible heat and stress…. For us too, nothing was left other than to avoid the shelling. We'd rush to where a shell had just exploded because we knew that for the next few minutes no shell would fall there again. The Angolans who couldn't get into the armoured troop carrier, the armoured patrol car or some other hideout rushed about, ducking behind anything they could find. Cries of the wounded and screams of horror were heard everywhere, covered by the endless explosion of missiles and whistling of shell fragments. At last we discovered a weak spot in the enemy line and everyone scrambled that way. Why the weak spot, we asked ourselves? Perhaps it was just that the South Africans had finally got tired of playing around with us. But this was hardly likely. We'd been studying their tactics and knew that their style was to hit FAPLA and destroy them completely so as to stop being plagued by them. And they had particular scores to settle with our brigade. Be that as it may, around 15:00 we were finally able to break out of this hell. Our vehicles gathered together, while our exhausted soldiers collapsed in a heap on the grass. Nearby, maybe 20 metres away, a knocked-out tank from our brigade was burning. Shells and cartridges still inside went on exploding for almost an hour.[24]

What transpires to have happened is that during the afternoon of 16 November, Combat Group Charlie disengaged to resupply. Certainly enough, Combat Group Alpha was tasked with pinning down the 21st BrI, but the South Africans made a mistake in assuming that the Angolans would remain static to reorganise.

Two bad Days

21 and 22 November 1987 were perhaps the worst days of the Second Angolan War experienced by both the Angolan and Cuban fighter aviation: within something like 24 hours, they lost a total of four MiG-23ML fighter-bombers. To add salt to the injury: as far as is known, not one of the losses was caused by the enemy, but by navigation-related issues, and most occurred well away from where the FAPLA needed air support the most.

During the evening of 21 November 1987, Captain Barbaro Raúl Quiala Castañeda was on an attack mission from Luena AB, when his MiG-23ML hit the ground, instantly killing the pilot. The wingman did not see the crash, nor observe any kind of enemy anti-aircraft activity.

Early on 22 November 1987, two Angolan-operated MiG-23MLs – serial numbers C-427 and C-462 piloted by Sub-Lieutenants António Ribeiro Cardoso and João Batista Sobrinho, respectively – were scrambled from Menongue to strike a FALA unit that had ambushed a supply convoy about 40–45km outside the town. As the two jets were on the way back, the power supply system at Menongue Air Base failed: this caused both the loss of radio communication and the malfunction of the PAR navigation beacon used to help pilots orientate. Ribeiro Cardoso and Batista Sobrinho lost their way, ran out of fuel and both were forced to eject – as it turned out, over the Mumbué area, about 100km north of Menongue. In attempt to locate the missing pilots and their jets, two additional MiG-23MLs were scrambled, both flown by Cubans: João Machin and Ernesto Chávez Marrero. However, in the course of their search, they ventured all the way to Capelongo: a small town about 150km west of Menongue, over which the FAPA/DAA had established a 'no-fly zone' covered by its SAMs. An Angolan S-125 Pechora SAM site (ASCC/NATO-codename 'SA-3 Goa') opened fire and scored a direct hit on the jet flown by Chávez Marrero, instantly killing the pilot. The wreckage of his MiG was found in the forest outside the village of Kuvango, about 20km north of Capelongo.[27]

Not all the Cuban pilots that were shot down were lost due to enemy anti-aircraft defences. Captain Barbaro Raúl Quiala Castañeda was killed in combat while operating a MiG-23ML from Luena AB on 21 November 1987. While underway on a bombing mission early in the evening, for unknown reasons, he failed to climb out of a dive and crashed. This photograph shows him with the MiG-21bis C342. (Reinel Castañeda Ferrer Collection)

However, as soon as Combat Group Charlie disengaged, the 21st BrI escaped from the trap – covered by another tropical thunderstorm that came right on time. During the following night, the Angolan unit rounded the source of the Hube and then made a dash for the Chambinga Bridge. The South Africans rushed to close the trap, but were slowed down by the vegetation and repeated air strikes: despite bad weather, the DAA/FAR contingent in Menongue flew more than 20 combat sorties that day. The 21st BrI thus crossed the bridge on the afternoon of 17 November, followed by the 16th BrI and the 2nd Tactical Group – despite another intensive South African artillery barrage, which pinned them down on the south bank for several hours, and the need to clear the hulks of numerous destroyed and damaged vehicles.

The battle ended as a costly affair for both sides. Combat Groups Alpha and Charlie of the SADF lost six killed and 19 wounded, and had to write off two Ratels, one Rinkhal, and one armoured recovery vehicle. Moreover, one of the FALA regular battalions accompanying them suffered extensive casualties, the exact number of which remains unknown. On the other side, the 21st BrI lost one T-55, two BM-21s, one BTR-60 and four trucks, and had 134 killed.[25] The South Africans managed to improve the total score only when destroying two T-54s of the Angolan rear-guard. FAPLA thus managed to withdraw all of its units north of the Chambinga, even though they were anything but 'intact': the 2nd Tactical Group, the 16th and the 21st BrI were all mauled and shaken, with the latter down to 750 troops, two T-54/55 MBTs, six ZU-23s, and one B-10 recoilless rifle fit for duty. However, they all survived to fight another day.[26]

Final Attempt

Combined with the early onset of the rainy season, the semi-successful extraction of FAPLA units from south of the Chambinga River added to the pressure upon the South Africans. Although victorious, they were still well short of their objectives and rapidly running out of time to deal the desired 'killer blow' upon the enemy, because the mass of National Servicemen that made up their combat units were about to be demobilised at the end of the month. Nevertheless, in a forlorn hope the Angolans might – finally – break down, and although SADF field commanders did not expect anything similar to happen, Task Force 10 was ordered give it another try. After restocking its supplies with use of the overstretched supply line – which was beginning to show the first signs of strain in the form of shortages of ammunition, spare parts, and other supplies (which eventually became endemic) – Combat Groups Alpha, Bravo, and Charlie, reinforced by the 3rd, 4th, and 5th Regular Battalions of FALA, crossed the Chambinga River early on 25 November 1987, east of the bridge. Once there, they set up a frontal attack on the Chambinga High Ground.

However, the Angolans were not sitting idle. Expecting such a move, and aiming to protect the Tumpo Triangle, they had

A wrecked Ratel infantry fighting vehicle of the SADF. (Albert Grandolini Collection)

reorganised their forces: by the 25th, the bridge was protected by the 25th BrI, with the 66th BrIL in the rear. South-west of these were the 2nd Tactical Group and the 16th BrI, while further east was the 59th BrIM. Further to the rear was the 21st BrI (defending the Cuito River Bridge south of the town), while the 13th Airborne Assault Brigade (*Brigada de Desembarque e Assalto*, BrDA) was in Cuito Cuanavale. Moreover, MiGs of the FAPA/DAA were now clearly dominating the skies. Thus, when the 3rd and 5th Battalions FALA attacked the 25th BrI with Combat Groups Bravo and Charlie following in their wake (and waiting to serve as an exploitation force), they found themselves not only facing extremely dense vegetation (this was so thick that SADF armoured vehicles had a problem with turning their turrets to the side, because gun barrels became entangled in the branches), but also heavy air strikes. As a result, it took them four hours to navigate just 800 metres of the terrain. Arguably, the 5th Battalion eventually managed to capture the forward defence line of the 25th BrI, but in the process it suffered heavy casualties rendering it unfit for further combat. Moreover, when Combat Group Bravo then advanced to exploit as planned, it found itself on the receiving end of withering and accurate mortar fire which damaged several Ratels and disabled another, killing one of its crew. At this point in time, the attack was recalled.

Undeterred, the South Africans gave it one last try on the morning of 26 November. This time, Combat Group Charlie and the 4th Battalion of FALA conducted the main effort: before long, their approach was detected and both units subjected to the intensive artillery barrages of virtually all the pieces FAPLA could scratch together south of Cuito Cuanavale, from D-30 122mm howitzers to M-46 130mm guns, and several BM-21 batteries. Suffering heavy losses, the 4th Battalion of FALA withdrew, followed by Combat Group Charlie – and without having reached the Angolan positions. Operation Modular thus ended with a clear-cut FAPLA victory, and well short of the South African objectives. Arguably, the SADF remained superior on the battlefield – even if frequently at the cost of heavy losses of UNITA combatants; and, there was no doubt that the terrain and the Angolan air power proved instrumental in stopping its advance. However, the South Africans also had to accept the fact that FAPLA units proved much more combative and manoeuvrable than expected, and that their own forces were insufficient for the task, too exhausted and at the end of logistic lines that were much too long to succeed.[28]

2

Accepting the Challenge

In retrospect, the conclusion would seem to be that the Cubans were right when criticising the Soviets and the Angolans: Operation Salute to October was overambitious, extremely poorly planned, lacked the necessary security, included forces insufficient to combat the SADF and FALA in the heart of territories controlled by UNITA, and was thus bound to fail right from the start. Unsurprisingly, it was assessed as an abysmal failure by almost everybody – regardless of whether in Angola, Cuba, South Africa, or the West. Many such conclusions were based on the 'minimal' losses of the SADF: between July and December 1987, Pretoria acknowledged 31 men killed and the loss of fewer than a dozen armoured vehicles. Even the loss of one Mirage to the Cuban-flown MiG-23MLs on 27 September 1987 remains hotly disputed, because while the jet was actually written off, its front fuselage and wings were subsequently used to repair another aircraft. In comparison, and as detailed in Volume 4 and above, the FAPA/DAA and the DAA/FAR had to write off about a dozen MiG-21s and MiG-23s. Finally, South African SIGINT intercepted Angolan communication indicating up to 4,084 officers and other ranks of FAPLA had been killed in action during the same period.

However, it is plain wrong to assess the outcome of these battles without considering the extensive losses of the Angolan insurgents: frequently rushed forward to unmask enemy positions and draw Angolan fire, FALA units supporting the SADF through Operation Modular suffered about 3,000 killed. While there is still a note of doubt about this figure, and while there is no doubt about the outcome of both the Salute to October and Operation Modular, there is no denial that the FAPLA units proved a much deadlier foe than usually acknowledged. Furthermore, it is plain wrong to draw similar conclusions to those that most of SADF veterans still do, and assume that they defeated not only the FAPLA, but also the Cuban troops deployed in Angola: by November 1987, and except for pilots of the DAA/FAR contingent in Menongue, none were involved in the fighting anywhere in the Cuito Cuanavale area. Finally, it should be kept in mind that Operation Salute to October fully exposed the fact that regular battalions of the FALA – the large, well-equipped, and more powerful units established since 1985, described in detail in Volume 4 – remained unable to face FAPLA's infantry brigades without suffering prohibitively high rates of attrition. This was of crucial importance for the subsequent flow of the Second Angolan War, because pursuing the Maoist doctrine of People's War – which always remained the core of its ideology – through 1987 UNITA had largely achieved its aims: with the help of the SADF, it established permanently controlled areas from which it could run operations into the depth of the government-controlled areas. The combination of the top cover provided by South Africa and intelligence provided by the local population in turn meant that it largely operated without being detected by the enemy. This made the FALA capable of surrounding the FAPLA units and preventing them from conducting their own reconnaissance patrols: indeed, it enabled forward artillery observers of the SADF to closely monitor the movement of the Angolan units and direct devastatingly precise artillery barrages upon them. However, in turn, SADF officers complained about the poor reliability of intelligence provided by UNITA, and that FALA units regularly failed to act according to plans. Simultaneously, insurgent officers began growing sour over the South African practice of deploying them as cannon fodder – to draw Angolan fire and thus unmask enemy positions, usually at a terrible price for their combatants. Correspondingly, Operation Modular made it clear that neither the SADF nor the FALA could remain successful without their symbiotic cooperation: UNITA still needed South Africa if it was to defeat FAPLA and to grow to the point where it could wage the final phase of the Maoist strategy (defeating government forces in conventional warfare): *vice versa*, the SADF was forced to realise that it could not achieve more than a fraction of its results if operating without the FALA support. Finally, FAPLA was forced to realise that the Soviet assessment according to which the South Africans would limit their involvement was wrong: indeed, that from the moment the SADF deployed its conventional forces, any prospect of reaching Mavinga was mere wishful thinking – exactly as the Cubans assessed. Moreover, FAPLA was forced to the conclusion that whenever its units operated within UNITA-controlled territory, they were advancing blind, because insurgent ambushes prevented any means of field reconnaissance. Whenever trying to find the SADF, they found it screened by the FALA: they could overpower the insurgents, but in turn this exposed them to vastly superior volumes of South African fire. The combination of SADF artillery barrages and FALA's relentless company- and battalion-sized attacks then slowly but surely wore FAPLA units out and exhausted their stocks of ammunition, water, and supplies. Under such circumstances, the Angolans were unable to advance on Mavinga, not to mention reaching Jamba.[1]

Meeting in Havana

For months through 1987, the MPLA pressed the commander of the MMCA, General de Division Arnaldo Ochoa, to permit the direct involvement of some units of the powerful Southern Group of Forces of the Cuban army in Angola (*Agrupación de Tropas del Sur*, ATS) in combat against the SADF and FALA south of Cuito Cuanavale. As described in Volume 4, the purpose of the ATS was the protection of south-western Angola against a possible invasion by the SADF, but its five tank brigades and one independent tactical group were all deployed between Namibe, Menongue and Huambo: well away from the combat zone in the south-east. After the debacle of the Battle of Lomba, and the loss of Colonel Rojas, Havana decided to do exactly that, and thus Ochoa and his aides began expressing their willingness to, 'do much more'. Correspondingly, on 15 November 1987, the government in Luanda issued a formal request to Havana, and later the same evening Fidel Castro set up a meeting with his brother Raoul, Head of the Ministry of Defence (MINFAR) (*Ministerio de las Fuerzas Armadas Revolucionarias*, Ministry of the Revolutionary Armed Forces, Cuba), and the leadership of the FAR.

In the course of a conference that lasted almost 10 hours, several crucial decisions were taken. Foremost was to reinforce the ATS through additional troops from Cuba, and the FAR troops already in the country to redeploy to Cuito Cuanavale to ensure the town would not fall to the enemy. That said, and while the Cubans were not to become involved in large-scale and protracted battles, Castro decided to kill two birds with one stone and realise a strategic idea that had emerged at least a year earlier: simultaneously with reinforcing the garrison of Cuito Cuanavale, the ATS was to establish a new defence line in the Cunene Province, almost directly on the border with South West Africa, thus increasing the pressure upon the South Africans. As he explained later on:

> By going there [to Cuito Cuanavale] we placed ourselves in the lion's jaws. We accepted the challenge. And from the first moment we planned to gather our forces to attack in another direction, like a boxer who with his left hand blocks the blow and with his right-strikes.[2]

Certainly enough, the government in Havana did not expect to provoke a major showdown with the SADF: rather to intimidate Pretoria into withdrawing its forces from Angola, like it did in 1976. However, Castro could not rule out a battle for the Cunene: this is why the ATS had to become powerful enough to overcome any kind of opposition – especially in regards of its air defences, which had to become capable of completely neutralising the SAAF. To no small degree, this two-prong approach was also dictated by the logistics and the local terrain and vegetation. The Cunene was much closer to the Cuban bases along the coast, its geography was more suitable for large-scale mechanised operations, and the vegetation was less intricate than in the Cuito Cuanavale province. Atop of this, the area was well-known to Cuban allies of the PLAN, while UNITA had next to no presence, which meant that the SADF was deprived of crucial intelligence assets. In grand total, Castro expected to obtain a bargaining chip for peace negotiations that had been ongoing for years, and end both the wars in Angola and South West Africa with a single stroke, favourable enough for Havana to finally withdraw its expeditionary force from the quagmire – without losing face, of course.[3]

Castro in Charge

Contrary to earlier situations, when they had tried to negotiate a solution with their allies in Luanda and Moscow, this time the Cuban policy makers decided to run the show entirely on their own. They knew that the US government was embroiled in the Iran-Contra scandal, and thus feared nothing from the USA. Moscow was informed, but only once the first troopship departed Cuba: Havana expected the USSR to follow in similar fashion as it did in 1975–76. The government of the Soviet leader Mikhail Gorbachev turned out less than pleased with what it interpreted as the 'Cuban escalation' in Angola, because it was concerned that the affair might endanger ongoing negotiations with the USA regarding the Intermediate Range Nuclear Forces Treaty. In similar fashion, Soviet advisors in Angola resisted the Cuban takeover, fiercely, and even the Angolan leadership was reluctant to grant permission. Thus, a mini-crisis erupted between the allies: while the MPLA leadership in Luanda eventually gave in, the Soviets ignored all the Cuban requests for advanced equipment – mainly in the form of SA-3s and 2K12 Kvadrat ('SA-6 Gainful') SAMs, but also eight additional MiG-23MLs requested by the MMCA two months earlier. However, this had no immediate effects upon the Cuban deployment because Havana opted to ship the bulk of necessary equipment and ammunition from its own stocks. Finally, Castro found more than a few clear words when explaining his decision to Gorbachev:

> We do not bear any responsibility for the military situation that has been created there. The responsibility belongs entirely to the Soviet advisers, who insisted on urging the Angolans to launch an offensive in the south-east.… We have always been against foolhardy operations like this, which cannot solve the problem, which waste resources, and which divert attention

> from the attacks on the UNITA guerrillas in those regions of the country that are truly strategic in military, economic, social, and political terms…. The Soviet note criticizes our decision to send reinforcements because it – I quote – "goes beyond the needs of what is taking place in Angola."… The military situation has continued to deteriorate. The facts prove that our decision to send reinforcements without delay was absolutely correct. We cannot exclude the possibility of armed clashes with the South Africans. Anyone can understand how risky it is to be weak in such circumstances.[4]

Eventually, the crisis between Havana and Moscow proved short-lived and by the end of January 1988 the Soviets began delivering all the requested equipment – though without the extra MiG-23MLs.

Coup de Force

Meanwhile, officers of the MMCA made it clear to their Angolan counterparts, that henceforth all the military decision making related to the FAR – and the FAPLA – was in their hands. Castro emphasised this to President José Eduardo Dos Santos in a letter of November 1987:

> … Comrade José Eduardo, it is essential to have the closest cooperation and understanding between the FAPLA high command, our military mission in Angola, and our general staff in Cuba. When Soviets, Angolans and Cubans disagree, everything becomes paralyzed, and then wrongheaded decisions are made. The majority of our troops are in the south, we are responsible for these men, and we will not allow anyone to dictate a strategy that is wrong or foolhardy.[5]

The importance of what was a – more or less – Cuban *coup de force* could not be overstated: for the first time since 1976, instead of a three-headed hydra that had marred the war effort for more than a decade, a unified command was created, responsible for all strategic and operational planning and decision making of the FAR and the FAPLA. The change was felt all the way to the frontlines, when 2nd Lieutenant Igor Zhdarkin – still present in the Cuito Cuanavale area – recalled the arrival of Cuban officers in December 1987:

> The Cubans ran their affairs in a very open manner and reprimanded the Angolans severely if their tasks were not completed satisfactorily. Apparently, Cubans sometimes participated directly with the Angolan general staff in working out their operations. There and then, on the job, they showed the Angolans how one ought or ought not to do something, and also persuaded our own Soviet advisers to adapt to the local conditions. "Adapt yourselves to the cadres you work with and don't judge the situation as if you were in the Soviet Union" was their advice.[6]

That said, warry of the lax Angolan security, even after imposing strict communication discipline and the use of codes for all communications upon the FAPLA, the Cubans still refrained from informing their Angolan and Soviet allies about details of their planning. Eventually, this was to make matters particularly complex, although it left both the SADF and UNITA almost entirely clueless about enemy dispositions, capabilities and intentions.[7]

Operation Manoeuvres 31st Anniversary of the Landing of the Granma

The deployment of Cuban reinforcements – originally based on a contingency plan for deployment of additional air defence units – was named Operation Manoeuvres 31st Anniversary of the Landing of the Granma (*Maniobra XXXI Aniversario del Desembarco del Granma*). The first reinforcements to reach Angola in 1987 consisted of a group of highly experienced pilots of the DAA/FAR. They landed at Luanda IAP on 20 November and were promptly rushed all the way to Menongue, to become involved in combat operations as soon as they got there. Starting from 23 November, Ilyushin Il-62 airliners of the Cubana de la Aviacion airline began delivering troops (which took them at least 20 flights), while two days later a wave of 10 merchant ships left Cuba, hauling the heavy equipment of the Regiment Plaza and the Baraguá Brigade, and a complete Coheril Self-Propelled Anti-Aircraft Brigade (*Brigada Coheril Antiaérea Autopropulsada*) of the DAA/FAR. Alone the latter included five battalions (or 'SAM sites') equipped with SA-6 SAM system. By 24 December, the merchant ships *XI Festival*, *Otto Parellada*, *Bartolomé Masó*, *Augusto César Sandino*, *José Antonio Echeverria, 30 de Noviembre*, *Antonio Guiteras, Benito Juárez* and *Primer Congresso* had all unloaded their cargo in the port of Lobito.

Three young Cuban troops in front of a row of MiG-23MLs at Lubango AB in early 1988 when Operation Manoeuvres 31st Anniversary of the Landing of the Granma brought thousands of additional FAR soldiers to Angola. (via Luis Dominguez)

Table 4: DAA/FAR contingent in Angola, December 1987–June 1988

Wing	Squadron	Base	Commanding officer and Notes
DAA/FAR contingent		HQ Luanda	Colonel Carlos Lamas Rodriguez[11]
25th RACB		Lubango	Lieutenant Colonel Enrique Méndez Cabrera
	MiG-23ML squadron	Luanda, detachment of six in Luena	Major Eduardo González Sarria
	MiG-23ML squadron	Lubango, detachment of eight, later 12 in Menongue, two in Cuito Cuanavale	Lieutenant Colonel Armando González 'El Guajiro'
	MiG-21 squadron	six pilots in Menongue, detachment of two MiGs and two pilots in Cuito Cuanavale	Captain Francisco Mengana Caballero 'El Negrito' (CO of Menongue AB was Colonel Hernández Méndez)
	MiG-23ML	Cahama	est. June 1988; Colonel Ibarra
Helicopter Detachment	Mi-8T	Huambo	Lieutenant Colonel Moya
	Mi-35	two at Menongue, two at Cuito Cuanavale	CO Cuito Cuanavale AB was Colonel Juan Oscar

Table 5: Known DAA/FAR Air Defence Units (*Tropas Coheteriles Antiaéreas*) in Angola, early 1988

Unit	Sub-Units	Commanding Officer
Brigada de Defensa Antiaérea de Matala		Lieutenant Colonel Arturo Calás Tamayo
	Two SA-3 SAM sites, one technical group	
***Brigada de Coheril* Antiaérea Autopropoulsada**		Lieutenant Colonel Lázaro Terré Diaz
	Five SA-6 SAM sites, two technical groups	
Regimento de Defensa Antiaérea de Jamba		Lieutenant Colonel Arturo Calás Tamayo
	Three SA-3 SAM sites, one technical group	
Regimento de Defensa Antiaérea de Matala		Lieutenant Colonel Cano
	One SA-3 SAM site	

Meanwhile, the ATS integrated the staff of the Regiment Plaza and the Baraquá Brigade into its 80th Tank Brigade (BT), which was then ordered to redeploy from the coast to Caluquembe, protected by the newly-arrived SAM brigade. Overall, by the end of December 1987, 5,000 additional Cuban troops, nearly 120 tanks, several dozens of other armoured vehicles and a complete SAM brigade were in Angola and in the process of expanding the ATS, which was now under the command of General de Division Leopoldo Cintra Frías. It was only the beginning, because the build-up continued unabated, even if at a slower pace than initially: ultimately, a total of 7,445 crack Cuban troops (including 1,685 officers), were deployed to reinforce the MMCA and the ATS by the end of January 1988.[8]

The SAM Wall

The deployment of the Coheril Brigade was the centrepiece of the operation: the unit was used to reinforce the DAA/FAR SAM assets already covering the ATS, controlled by a single air defence brigade headquartered in Lubango. This included four SAM sites equipped with SA-3s, all entirely staffed by Cuban personnel. Two were protecting Lubango, while the other two covered Matala. However, it was not all: ultimately, by March 1988 the DAA/FAR deployed a total of eight battalions to Angola, thus increasing the total number of Cuban-operated SAM sites to 17. They significantly bolstered assets of the RA/DAAS which, as of January 1988, included eight SA-3, three SA-2, and four SA-6 SAM sites, deployed for protection of Namibe, Lubango, Matala, and Menongue. Despite the strong presence of Soviet advisors, all the Angolan air defence units were plagued by slow and ineffective training, low serviceability, and a notable lack of maintenance. Correspondingly, the Cubans went as far as to deploy their own specialists to almost all the SAM brigades of the RA/DAAS – to make sure all were fully operational and ready for action.[9] In this fashion, an outright 'SAM wall' came into being, stretching from Yuri Gagarin Air Base outside Namibe on the coast, all the way to Cuito Cuanavale.[10]

Rebuilding the 6th Military Region

For obvious reasons, Havana, MMCA, and the ATS also considered the option of reinforcing the FAPLA garrison in Cuito Cuanavale. However, after an inspection by officers of the MMCA, the Cubans concluded that there were enough Angolan troops deployed in the area to defend the town and its air base, and there was no need to dispatch any FAR units there. Instead, they assessed the leadership of the 6th Military Region as lacking in command and tactics – despite the presence of Soviet advisors. Correspondingly, a team of 15 officers – led by the Chief of Operations MMCA, Colonel Alvaro López Miera – arrived in Cuito Cuanavale on 5 December 1987, protected by 106 special forces operators of the Special Troops Battalion (*Tropas Especiales*) of the Cuban Ministry of the Interior (MININT). Officially acting as 'advisors only', López Miera and his staff actually assumed command of all the operations within the 6th Military Region, FAPLA. To make sure their orders would be followed, and starting on 25 December 1987, Cuban advisory groups each of 30 (or more) men were assigned to all the brigade headquarters of the Angolan armed forces in the same area. For example, 35 officers led by Lieutenant Colonel Fermin Sosa Borrero assumed the command of the 25th BrI starting from 3 January 1988. Aleksandar Petrovich Sergeev, a Soviet advisor assigned to this unit at the time, noticed a prompt effect upon the brigade's effectiveness:

> They served as trainers for Angolan personnel. Their aim was to get them battle-ready, and they achieved this in good time. From then on, our brigade no longer fled in panic at the first encounter with the enemy. The Cubans were able to force the Angolans to obey and train them within a short time. They tormented every Angolan commander and made him work. I was witness to one

General Leopoldo Cintra Frías – member of the Political Bureau of the Cuban Communist Party since its establishment, former Commander of the Cuban 3rd Tank Brigade in Ethiopia, graduate of the High Military School, and then the Minister of Defence of Cuba – assumed command of the ATS in 1987. (*Diario de Cuba*)

> such incident. The Cuban Colonel Souza (we called him Sosa) was once passing an infantry trench in which an Angolan soldier was sitting. The colonel was himself also a black man, but the Angolan insulted him, telling him something offensive. I saw it all because it happened some 25 to 30 metres away from me. Souza didn't even bother to turn around but just drew his Makarov pistol from his holster and gunned him down.[12]

Through this action, the entire chain-of-command of the 6th Military Region, FAPLA, was doubled by the FAR officers – and this all the way down to the battalion level – which in turn was responsible solely to General Leopoldo Cintra Frías, the head of the ATS. Nominally, the latter referred to the General de Division Arnaldo Ochoa Sanchez, the head of the MMCA; however, Ochoa Sanchez soon developed multiple disagreements with Fidel Castro, who attempted to micromanage the entire operation. Finding no other solution, the Cuban leader eventually bypassed the 'maverick' and began dealing with Cintra Frías directly.[13]

While the Cubans were taking over, FAPLA continued sending a steady stream of fresh recruits to rebuild its battered units. Moreover, several brigades – or their elements – garrisoned elsewhere around the country were redeployed to the Cuito Cuanavale area. This included the complete 36th BrIL (which entrenched itself 12km outside the town, on the western bank of the Cuito River), and a battalion of the 19th BrI. Furthermore, the 3rd Independent Tank Battalion arrived in the town, as did a battalion of special forces operators from the 244th Brigade. Even the PLAN – the military wing of SWAPO – contributed to the effort by deploying a battalion of its 2nd Mechanised Infantry Brigade.[14]

3

Securing the Supply Route

As it turned out, the Cubans were offered plenty of time to familiarise themselves with the battlefield in the Cuito Cuanavale area, because both the SADF and FALA minimalised their activity throughout December 1987. Except for constant artillery harassment, and occasional hit-and-run attacks by the insurgents, very little was going on. This was no surprise considering the SADF needed time to reorganise its own units: both the 4th SAI And the 61st Mechanised Battalion were busy accepting hundreds of fresh conscripts and training these under local conditions, and with maintaining and repairing their vehicles before any large-scale operations. In similar fashion, the insurgency needed time to rebuild its units battered during Operation Salute to October. To keep their enemies busy and distracted, the South Africans meanwhile initiated an operation in an entirely unexpected direction.

The Road of Death

In late November 1987, the SADF began focusing its attention on the logistical jugular of the 6th Military Region: the road connecting Cuito Cuanavale with Menongue. This 200-kilometre-long connection was extremely difficult to secure because many of its stretches were surrounded by dense bush. FALA insurgents thus regularly ambushed Angolan and Cuban supply columns, often accompanied by SADF reconnaissance teams, that guided occasional air strikes by Mirages. Eventually, the Angolans had no option but to organise huge convoys – including between 150 and 300 trucks – heavily protected by the entire 8th BrI. In turn, the latter constructed several well-fortified staging areas, where convoys would stop for the night. Such massive formations often took seven or eight days to travel from Menongue to Cuito Cuanavale, though the staging areas proved perfect targets both for SAAF air strikes and FALA mortar teams.

Despite Angolan efforts, the sides of the road from Menongue to Cuito Cuanavale began filling with wreckage of burned-out trucks of all sorts. Sustained, bitter, brutal, and tough attacks on this vital communication route created such a crisis that in early December the FAPA/DAA had to deploy its Antonov An-26 transports to haul fuel, troops, food, and ammunition to Cuito Cuanavale: just between the 4th and 11th of that month, they transferred 1,268 troops, and 48.4 tons of food and ammunition. On the way back, they carried the dead and wounded to Menongue. When that proved insufficient, even Mi-8 helicopters were deployed for similar tasks: two of them – borts H-42 and H-45 – were rendered non-operational in an accident of unknown nature. During the same week, and in attempt to curb the South African and insurgent activity along the road, fighter-bombers of the FAPA/DAA – which now included four Su-20Ms forward deployed to Menongue AB – flew 134 ground attack sorties, deploying 114 250kg bombs and 675 S-5 unguided 57mm rockets.[1]

This still proved insufficient. On the contrary, the supply crisis was further increased because the SADF was already working on causing even bigger problems for its enemies. In early December 1987, it deployed a small battle group into the area west of Cuito Cuanavale, with the task of reinforcing the 1st Regular Battalion of FALA and South African reconnaissance teams already there. The resulting task force was commanded by Commandant Jan Hougaard, commanding officer of 32nd Battalion, and included a battery of Valkiri MRLS, an infantry company of the 101st Battalion, a group with 81mm mortars, a platoon equipped with 106mm recoilless

The sides of the so-called 'Road of Death', connecting Menongue and Cuito Cuanavale, remain dotted with wreckage of destroyed vehicles to the present day, including this FAPLA T-54. (Photo by Al J Venter)

rifles, and a team operating SA-7 MANPADs, all drawn from the 32nd Battalion. At least as important was that it included a Mobile Operation Team of the SAAF, equipped with SIGINT systems installed in two Casspir MRAPs, and including a Mirage pilot of the Chilean Air Force who listened to Angolan and Cuban communications and translated them in real time. Moreover, on 15 December 1987, SAAF Mirages hit a convoy of fuel tankers. Reacting to the new threat, and knowing the South Africans usually flew such attacks either at dawn or at sunset, the Cuban MiG-23ML detachment in Menongue started scrambling pairs of MiG-23MLs at these times of the day, in attempt to catch the next incoming Mirage formation. Whether by chance or design, this attempt was never successful, but it did result in a lull in attacks, enabling another supply convoy to reach Cuito Cuanavale on 24 December.[2]

By the end of 1987, the Cuban officers in charge of the garrison of Cuito Cuanavale were anything other than pleased. Certainly enough, Angolan Mi-8 helicopters flew a total of 338 missions, hauling 292.52 tons of cargo and 2,368 men. Fighter-bombers flew another 382 sorties, 164 of which resulted in the use of bombs, and 45 in the firing of S-5 rockets against insurgents active along the crucial road. In turn, on 5 January 1988, a MiG-21bis was damaged by anti-aircraft fire in the Sarmiento area and its pilot, 1st Lieutenant Amides, wounded: nevertheless, he managed to return safely to Menongue, just like the Mi-17 flown by 2nd Lieutenant Falcón that was shot up by ground fire on the same day. On 7 January, FALA ambushed a Cuban column underway from Menongue to Cuito Cuanavale, killing eight FAR troops and wounding more than 30. During the pursuit of the insurgent unit in question, three days later a Cuban piloted MiG-23ML was mistakenly fired upon by an Angolan SA-7 team, but the weapon detonated behind its target, without causing any damage.[3]

Overall, the condition of the 6th Military Region continued deteriorating. Indeed, during the night from 9–10 January 1988, Hougaard's battle group joined the action by unleashing its Valkiri MRLS upon another supply convoy. By the end of February, it had conducted 16 such operations. Every time, the FAPA/DAA reacted with vigorous action. For example, after a South African attack during the night of 9–10 February, it is known to have launched the following air strikes from Menongue:

- Four MiG-21s against targets in the Mupa area
- Seven MiG-23MLs providing top cover and four MiG-23MLs against targets in the Yonde area
- Six MiG-23s against targets in the Savate area
- Two MiG-23MLs providing top cover and four MiG-21s against targets in the Savate area
- Two MiG-23MLs providing top cover and four MiG-21s against targets in the Savate area

By this time, even the last four Su-20Ms were rushed to Menongue. They flew eight air strikes on 11 February 1988, but a day later one of them disappeared during a bombing mission: neither the pilot nor his aircraft has ever been found. Although having only three jets left, the unit continued flying combat sorties until withdrawn back to Yuri Gagarin AB on 18 January 1988. However, during the transfer it lost another jet – bort C503 – and its pilot: once again, neither was ever found. With this, the Sukhoi flight of the 9th RACB was down to just two operational jets and out of the battle in south-eastern Angola.[4]

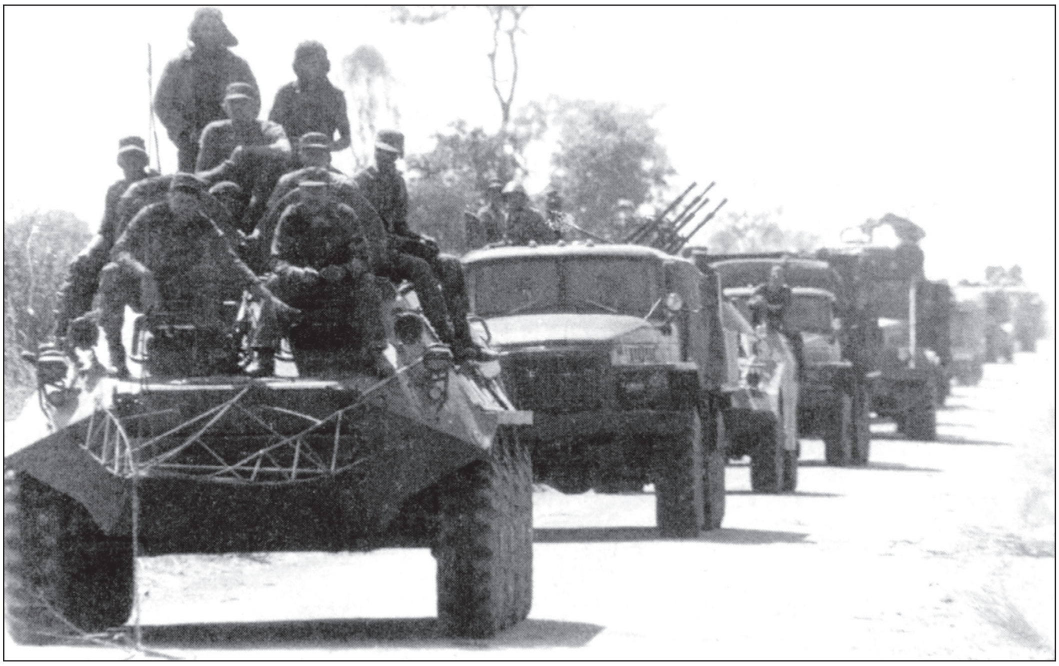
Attack on Menongue AB

If the persistent interdiction of the flow of supplies along the road from Menongue to Cuito Cuanavale was not enough, through January 1988 the SADF repeatedly deployed its G-5s to shell Cuito Cuanavale AB. Guided by reconnaissance troops, the crews of the long-range guns developed a strong predilection for targeting whatever aircraft or helicopters were taking off or landing. On 24 January 1988, they targeted a Cuban-operated Mi-17: fortunately for the crew, nobody was injured and the damage was insufficient to prevent the helicopter from flying all the way to Menongue.

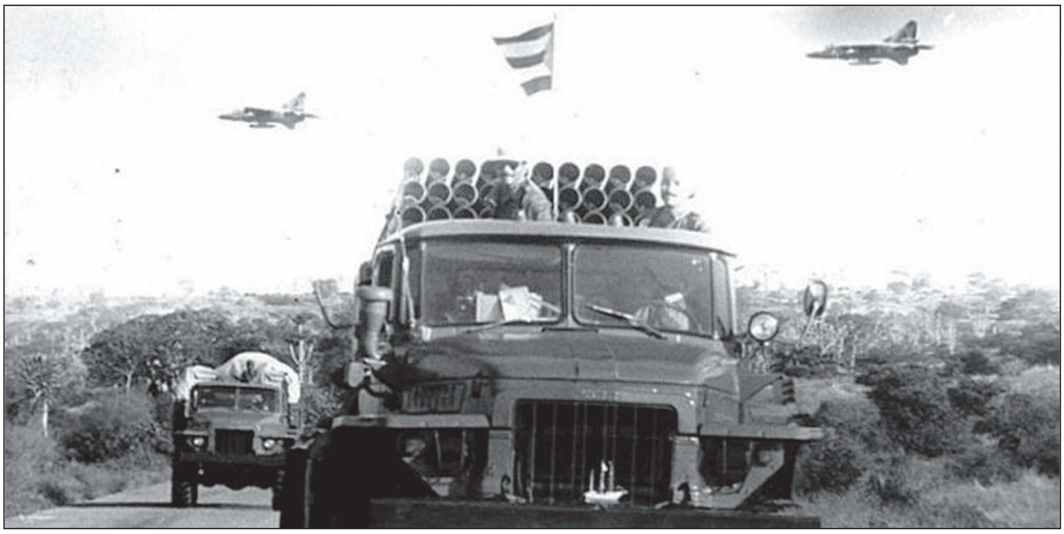
Further increasing the pressure upon the road from Menongue to Cuito Cuanavale, the SADF meanwhile reinforced Hougard's battle group through the addition of one infantry company from the 101st Battalion, and three infantry companies and a full squadron of Ratel-90s from the 32nd Battalion, and then ordered it to strike directly at Menongue AB. Obviously, Hougaard lacked the means to capture the crucial base: instead, during the night of 13–14 February, his troops found a way to approach closely enough to fire two full volleys of 192 rockets from their Valkiri MRLS at it – before quickly withdrawing. Designed to combat enemy infantry, the rockets were equipped with fuses causing them to burst above

Wreckage of a Soviet-made parachute-retarded OFAB-250ShN bomb that failed to detonate after being released upon an SADF unit. This relatively rare weapon was usually deployed by Angolan-flown MiG-21s. (Albert Grandolini Collection)

the surface. Correspondingly, they failed to cause any kind of lasting damage to the runway. However, according to the SADF intelligence, they did damage one of the aircraft, killed seven Cuban ground personnel and an unknown number of Angolans. Whether the Cubans really suffered such a loss remains unknown: what is certain is that their reaction was furious. Starting at dawn on 14 February 1988, Hougaard's battle group was vigorously prosecuted – from the air and on the ground. Multiple Mi-25s, MiGs, and Sukhois were scrambled to strafe and bomb any trace of its presence and the South Africans and accompanying insurgents were more than lucky to avoid suffering serious casualties during their withdrawal.[5]



A supply convoy led by a BTR-60 wheeled armoured personnel carrier, and a Ural truck with ZPU-4 automatic machine gun, travelling down the road from Menongue to Cuito Cuanavale. (Albert Grandolini Collection)

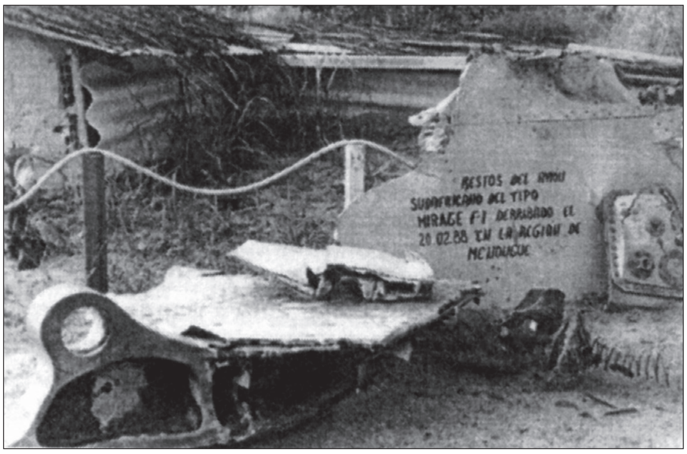


A pair of MiG-23MLs passing low over a Cuban-led supply convoy underway to Cuito. (Albert Grandolini Collection)

Countermeasures

Styled by UNITA's propaganda machinery as a 'nocturnal commando raid', the attack on Menongue AB turned out to be the 'drop that over-spilled the barrel': it prompted General Ochoa into ordering a number of countermeasures that were to secure the crucial road for good. Back on 17 January, he ordered the 10th BrI of FAPLA, and one of the tactical groups of the FAR to Menongue, to reinforce the embattled 8th BrI. The additional troops enabled him to launch a large-scale pursuit, forcing Hougaard's battle group and accompanying insurgents ever further away. In their wake, the Cubans and Angolans constructed a number of fortified positions, as recalled by Lieutenant Oleg Arkadyevich Grisuk, one of the Soviet advisors assigned to the 13th BrDA:

> As soon as they arrived, the Cubans at once blocked the road to Menongue so that not one UNITA partisan remained there. They immediately expelled the Angolan guards and, as was told to me, set up every 500 metres a fortified point with machine guns along the road. The military column would depart in the morning from Menongue and reach us by evening. Previously, such a column would have taken a full week although there were only 200 kilometres to cover altogether.[6]



The wreckage of Major Ed Every's Mirage F.1AZ, proudly put on display for the foreign press in Luanda. (MPLA Release)

Moreover, from late January 1988, Cuban MiG-23ML pilots began flying night interdiction strikes against South African supply convoys. Such missions were usually flown by a pair of aircraft, between 20.00 and 02.00hrs, but after a few days, the timing was changed to 02.00-04.00hrs, in attempt to wrong-foot the enemy. Initially, some of aircraft were armed with UB-32-57 pods for57mm S-5K unguided rockets. However, pilots quickly concluded that

An Mi-35, serial number H354, armed with UB-32-57 pod for unguided 57mm rockets underway low over one of the villages next to the road connecting Menongue with Cuito Cuanavale. (Albert Grandolini Collection)

A Cuban crew with their ZSU-23-4 (largely covered by foliage), seen in southern Angola in 1988. (Albert Grandolini Collection)

firing these severely disrupted their night vision and caused spatial disorientation, and subsequently all the night strikes were undertaken by jets each armed with four FAB-500M-62 fragmentation bombs. Eventually, the Cubans claimed heavy damage against at least two truck convoys, but no corresponding reports are known from the South African side.[7]

Ambush for Mirages

The fortified outposts constructed by the Cubans actually had a dual purpose: one was to keep the SADF and FALA away from the road, but the other was to prevent SAAF air strikes on it. Namely, after carefully studying earlier Mirage operations, the Cubans discovered that their pilots were using a number of local landmarks for navigation, especially as their 'pull-up' points: points at which they initiated their attacks with a climb into a bomb release. Correspondingly, they distributed about a dozen teams near such landmarks, each centred on a single ZSU-23-4 Shilka radar-controlled SPAAG, accompanied by two teams equipped with newly-acquired SA-14s, and protected by a platoon of infantry. After waiting for days, two such teams proved highly successful. On 20 February 1988, a SADF reconnaissance team that managed to sneak up on the road unobserved, reported a large convoy moving out of Menongue in the direction of Cuatir. The intelligence was forwarded all the way to Grootfontein AB in South West Africa, and No. 1 Squadron prepared four Mirage F.1AZs. The jets approached the target zone – the area where the road crossed the River Cuitar – flying extremely low, and unmolested by Angolan and Cuban air defences. However, as it pulled up to release, the left pair of Mirages found itself under fire from multiple directions. Shortly after releasing its bombs, one aircraft was hit by several 23mm shells and was then shot down by one of several SA-14s fired at it. The jet crashed almost instantly, killing its pilot, Major Ed Every from No. 1 Squadron, SAAF.[8]

Following this loss, Pretoria publicly admitted its military presence deep inside Angola, even if mis-describing it as 'limited' and as 'pursuing guerrillas of SWAPO'. Arguably, the South Africans may have exacted some level of revenge when Hougaard's battle group sprayed the crash site with a volley from Valkiri MRLS just as it was inspected by a group of Angolan and Cuban officers a few hours later. Nevertheless, FAPLA managed to recover multiple pieces of Every's Mirage and these were proudly presented to the representatives of the foreign media in Luanda. Moreover, during the following days, the Cubans intensified their pursuit of the SADF combat group to the level where its position was dire: amid the constant game of hide and seek, it became unable to continue interdictions of supply convoys. Therefore, on 3 March 1988, Hougaard was ordered to withdraw in the direction of Mavinga.[9] The crucial supply route from Menongue to Cuito Cuanavale was now, finally, safe.

4

Battle of Cuito Cuanavale

Through the second half of December 1987, Cuban officers managed to consolidate the defences of Cuito Cuanavale and build up three defence lines. The forward line was roughly 25 kilometres long and ran down the western side of the Chambinga Plateau, between the Cuatir River in the north and the Chambinga River in the south. It was held by three FAPLA brigades: the rebuilt 21st BrI was entrenched along the Cuatir River, the 59th BrIM was holding the centre, and the 25th BrI was deployed near the Chambinga River Bridge. The headquarters of the ATS and the MMCA were perfectly aware of the fact that this disposition of forces was far from ideal, foremost because each of the brigades was able to occupy only a minor section of the frontline, and there were large gaps – some as wide as 5,000 metres – in between them. However, the FAPLA units were not expected to remain idle, but to vigorously patrol their areas of responsibility and manoeuvre as necessary.

The second defence line protected the so-called Tumpo Triangle: a flat lowland area delimited by the Cuito River in the west, and the Tumpo and Dala Rivers in the south and north, respectively. This area was defended by the 66th BrIL and the 16th BrI, with two companies of the 3rd Tank Battalion acting as a mobile reserve.

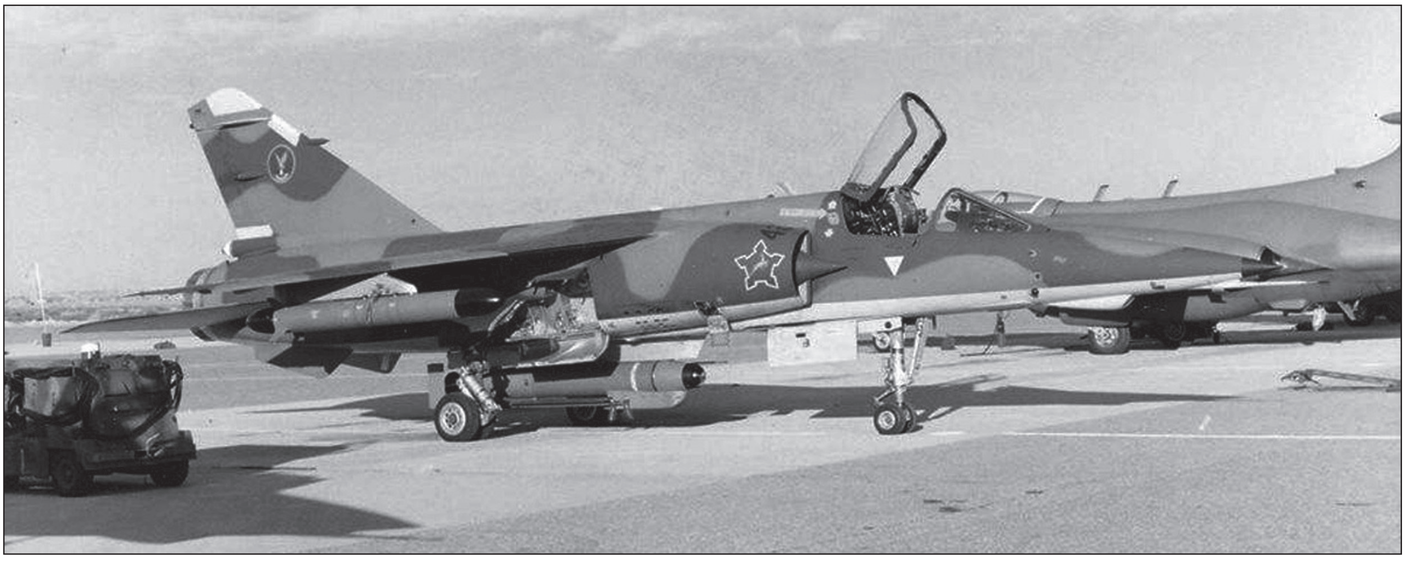
Finally, the third line was constructed along the Cuito River: the 13th BrDA was entrenched along the western bank, while the 68th Artillery Brigade deployed about 50 122mm D-30 howitzers, 130mm M-46 guns, and BM-21 MRLs around the town of Cuito Cuanavale. With the ground on the western side of the Cuito River being higher than on the eastern side, the Cuban commanders had a clear view over the Tumpo Triangle, and their artillery weapons were in a good position to provide support even for the first line of defences.[1]

The SADF planned to advance on Cuito Cuanavale with the 20th Brigade, consisting of the 4th SAI and the 61st Mechanised Battalion, reinforced by a squadron of Olifant tanks, and supported by the brigade's artillery and the SAAF. UNITA contributed heavily, providing not only its rebuilt 3rd, 4th, and 5th Regular Battalions, but also the 18th, 66th, 118th, and 275th Semi-Regular Battalions, and the smaller Penetration Battalion: about 4,000 combatants in total.

The two parties in the following showdown were thus relatively even matched, although the SADF possessed a distinct advantage in terms of firepower. However, the South Africans were critically short on spares for their artillery and armoured vehicles, food, and ammunition: the amount of these was only sufficient to keep the 20th Brigade engaged in an intensive battle for a few days. Moreover, the rainy season was meanwhile in full fledge, and the ranks of all SADF units were ravaged by malaria, jaundice, and hepatitis. By early February, alone 4th SAI had to evacuate over 100 of its officers and other ranks due to related infections.

New Crisis

The SADF first attempted to breach the first Angolan defence line 'on the cheap': with a combination of air and artillery strikes and psychological operations, conducted through the second half of December 1987.[2] When this proved ineffective, starting on 2 January 1988, the 4th SAI and the Olifant tank squadron attacked the positions of the 21st BrI, assessed as the weakest link in the enemy



A Mirage F.1AZ (here an example in one of several camouflage patterns tested in early 1988), with an H-2 glide bomb under the centreline. Clearly visible is the guidance pod installed on the right outboard underwing pylon. (Albert Grandolini Collection) line. Within a few hours, the FAPLA unit was subjected to a total of 1,700 81mm mortar bombs, and 105mm and 155mm artillery shells. A FALA battalion then assaulted and seized the forward enemy position, almost without encountering resistance. However, immediately after, the insurgents were subjected to vicious fire from concealed entrenchments in the Angolan second line, reinforced by a barrage from the 68th Artillery Brigade. After suffering heavy casualties, the surviving FALA combatants were forced to withdraw – and this well before the SADF could reach their positions to take over: the South Africans were held up by the continuous presence of MiGs in the sky above them, which forced them to remain concealed under the vegetation.[3]

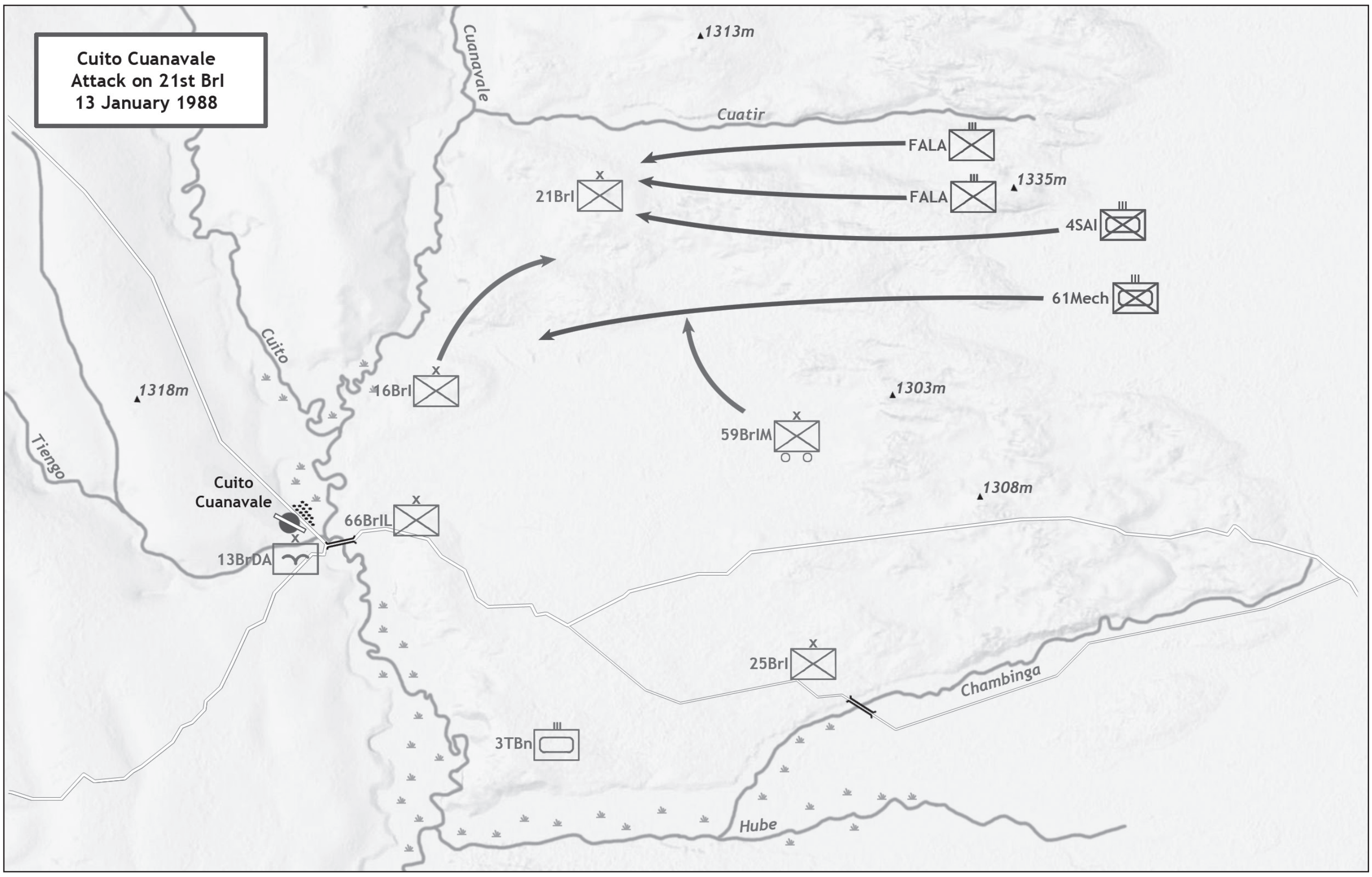
Both sides were still trying to catch their breath after the fighting of 2 January when, just a day later, Buccaneers of the SAAF flew a particularly successful air strike against the Cuito Cuanavale Bridge, and badly damaged this crucial link with H-2 bombs. With a single blow, all the FAPLA traffic to the area east of the river was interrupted, forcing the Angolans and Cubans to hurriedly construct an improvised passage nearby, using tree trunks, gravel and sand. However, at the high point of the rainy season, this was useful for troops on foot only. The FAPLA engineers deployed several barges in attempt to create a pontoon bridge, but these were systematically destroyed by the G-5 guns of the SADF.[4]

Friday the 13th

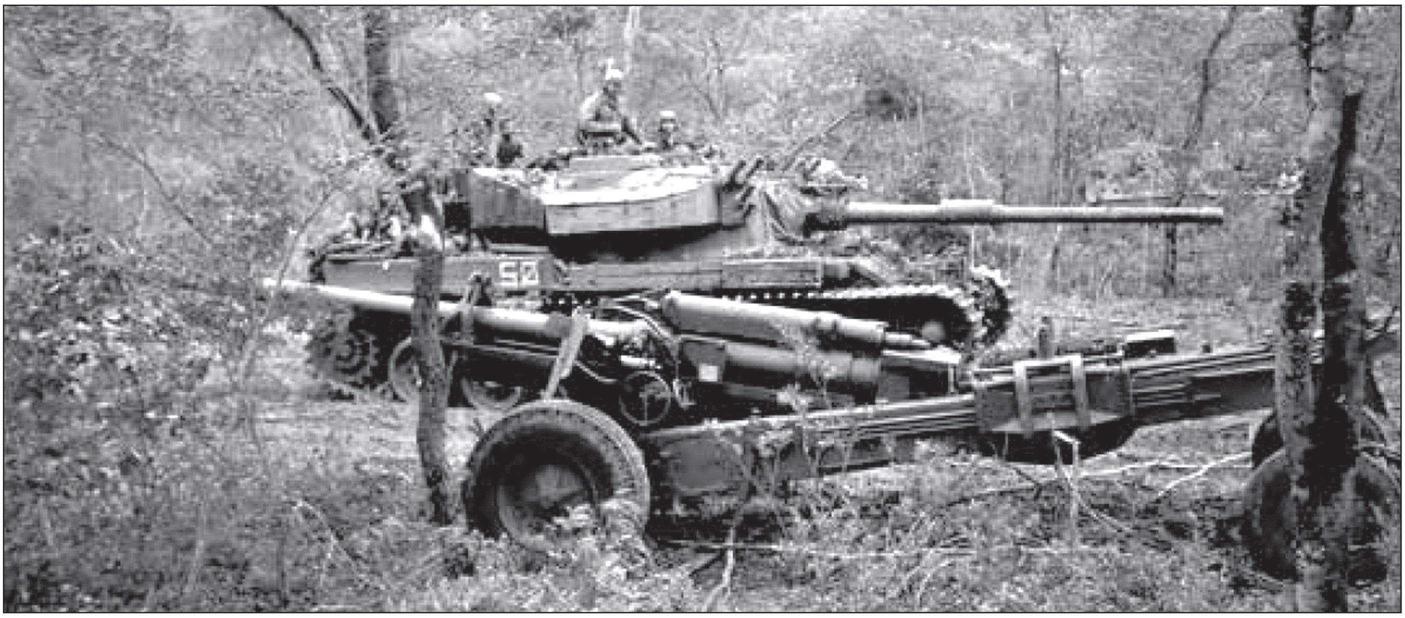
Following withdrawal well outside the range of enemy artillery, the headquarters of the 20th Brigade of the SADF opted to try again, but under 'fitting' meteorological conditions: the South Africans needed low clouds, which would prevent any interference from MiGs. The opportunity offered itself on 13 January 1988, when the 4th SAI, reinforced by the 3rd Regular Battalion of FALA, attacked the 21st BrI again. Advancing in the wake of a murderous, hours-long barrage by SADF artillery and multiple air strikes by the SAAF, the 4th SAI assaulted and secured the forward Angolan positions, before rushing to the aid of the 3rd Regular Battalion, pinned down by resistance in its sector: a company-sized FAPLA force continued fighting from its entrenchments until it was virtually annihilated by the South African armour. Meanwhile, the 61st Mechanised Battalion advanced straight into a gap between positions of the 21st BrI and the 59th BrIM, pending its assault into the flank of the latter, once the 21st was destroyed. However, the weather cleared early, and the South Africans were still busy fighting the 21st BrI by the time the Angolan and Cuban MiGs appeared overhead. MiG-21 and MiG-23 pilots of the DAA/FAR contingent at Menongue AB flew 22 combat sorties that day, dropping 32 500kg bombs: according to the South Africans, they did not cause any kind of casualties but certainly slowed them down. It was only around 16.30hrs that the 4th SAI and accompanying FALA infantry began assaulting the main position of the 21st BrI, triggering an hours-long exchange at the shortest of ranges. In attempt to stop the advancing Olifant MBTs, the Angolans not only launched multiple small-scale counterattacks but even brought one of their BM-21s to fire a full volley of 122mm artillery rockets at the Olifants, though without effect. At dusk, the FAPLA brigade broke off and withdrew towards the Tumpo Triangle. However, by then, it was too late for the SADF to pursue it, or to assault the 59th BrIM: they first had to restock their ammunition and repair one damaged Ratel and four Olifants.

Emergency Landing

The morning of 14 February saw the South African mechanised units raiding the area between the Cuatir and Dala rivers and knocking out a few enemy vehicles while approaching the Angolan second



A map of the SADF assault on the 21st BrI on 13 January 1988. This attack caused damage to the 21st BrI but failed to break it and also left the 59th BrIM intact. (Map by Tom Cooper)



A classic photograph of a battered Olifant Mk.1 passing by one of two M-46 guns captured during the Battle of Friday the 13th, fought between elements of the SADF 20th Brigade and FAPLA's 21st Brl. (Photo by Al J Venter)

Juan Francisco Duval, Cuban MiG-23ML pilot shot down while attempting to re-attack the 61st Mechanised Battalion under low cloud cover on 14 February 1988. Duval managed to nurse his badly damaged jet to a belly landing about 40km short of Menongue. (Albert Grandolini Collection)

line of defence. At dawn they were subjected to numerous air strikes, as the pilots of the DAA/FAR contingent in Menongue did their utmost to hit back. Braving the very low cloud base – which was just 150–300 metres above the ground – they conducted a series of high-speed attacks. As recalled by Jan Malan, CO of the 61st Mechanised Battalion, their bombs missed very narrowly: 'The MiGs swarmed in the air, and that morning a host of their parachute-braked bombs fell right into my laager!'[5]

A pair of MiG-23MLs was led by Lieutenant Colonel Armando González, with 1st Lieutenant Juan Francisco Duval, who recalled:

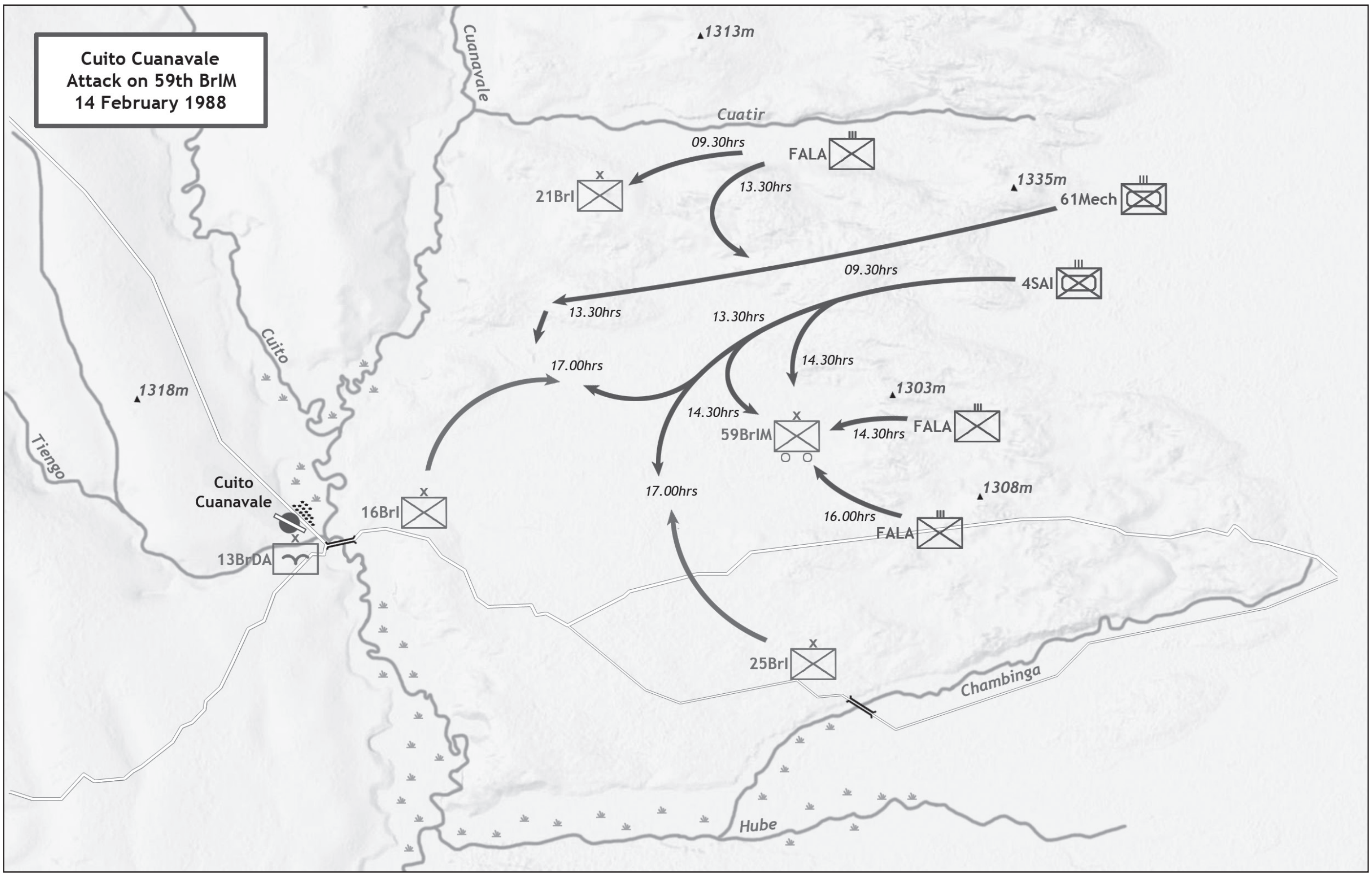
> After a rapid briefing, we took off at dawn. Basically, the mission consisted of low-altitude bombing at 50 metres, against the SADF formation attacking Cuito Cuanavale. The cloud cover was quite low, down to about 300 metres. We approached over the clouds using our instruments for navigation because it was impossible to see the terrain below. At the calculated distance, we dived and came out right over the target, deploying our bombs without problems.[6]

At the high point of their air strikes, the Cubans first deployed a single Antonov An-26 medium transport to carpet-bomb the South African and FALA troops with a total of 16 parachute-retarded bombs, then followed by another four MiG-23MLs. Duval was one of the pilots flying the latter:

> Not much after we got back to the airfield, our commanding officer proposed a repeat of the mission, but on this occasion he specified that the bombings should be made individually, with a time difference of one minute between each one, unlike before. As soon as our planes were loaded, we took off, and during the journey – also above the clouds – we created distance between each other to maintain the set time.

The lead pilot dived at 60 degrees, disappeared into the clouds, reached his release point and dropped his bombs. Sixty seconds later, Duval followed in fashion, but as he descended below the clouds, he realised he was off the necessary route. Calling the ground control, he requested a vector for new attack. After turning around, he found the right spot and dropped his bombs, but while turning and climbing upwards, his aircraft was hit by one of the ZU-23s freshly captured by the insurgents and turned against its former users:

> I never had been hit before. I felt the aircraft begin to vibrate. With a movement of the stick, the terrible sensation disappeared. I pulled the stick towards me again, and pushed the throttle, trying to get power. I climbed above the clouds but realised the aircraft was losing lots of fuel. Multiple warning lights were on, warning me of critical fuel levels…. Looking up into the rear-view mirror, I could see two generous streams of fuel disintegrating into the atmosphere through the cracks caused by hits. Assessing the gravity of situation, I decided to go for the emergency landing site, outside the village of Longa, about half-way back to Menongue,



A map of the SADF assault of 14 February 1988: this attack caused additional losses to the 21st BrI and overran the headquarters of the 59th BrIM, prompting the mass of both brigades to fall back. (Map by Tom Cooper)

> where our search and rescue team was waiting with a helicopter. While not in the best condition, it offered the last-resort option of ejecting or emergency landing…. Once there, I entered a gentle descent, emerged from the clouds, and saw the runway ahead of the aircraft's nose. I only had to make one adjustment in direction and then, with practically nothing left in my tanks, pulled the lever to deploy the landing gear. Apparently, damage had extended to some part of the hydraulics system, as there was a delay in the deployment of the landing gear. Considering the proximity to the runway and the lack of fuel to make a go-around, I decided to move the landing gear lever back into position and make a belly landing. When the altimeter showed I was between 10 and 12 metres above the surface, I turned off the engine: silence reigned for a few seconds before the inevitable collision…. The first impact was spine-chilling. The sliding of fuselage over the bumpy, soft runway, together with the high speed of the landing made my aircraft jump and shake, threatening to blow it or roll it over…. Finally, the robust MiG-23ML stopped…'

Slightly injured when hitting the collimator at the top of his instrument panel with his forehead, Duval opened the cockpit hood, jumped out, and walked towards the rescue helicopter, noticing the deep slash in the earth left in the wake of his landing. The doctor in the rescue team promptly tended to his injuries and he was evacuated to Menongue: following surgery in Cuba, he returned for another tour in Angola, this time as flight instructor.[7]

Eventually, the 'Battle of Friday the 13th' ended with another tactical success of the SADF and FALA. They had destroyed seven T-54/55s of the 21st BrI and captured another five; they destroyed or captured six other armoured vehicles, and secured two intact M-46 guns – all of this at the price of four damaged Olifants and one Ratel, four FALA insurgents killed, and 19 wounded. However, the 21st BrI had survived the ordeal and managed to withdraw in good order.[8]

Mysterious Blunder

The South African attack on FAPLA's first defence line outside Cuito put General Ochoa, Colonel López Miera and their staff on alert. The DAA/FAR contingent in Menongue was promptly reinforced by four pilots and MiG-23MLs from Lubango, and the FAPA/DAA added four MiG-21bis. Colonel Juan Oscar Hernández Méndez was assigned responsibility for coordinating all the aerial movements in the Cuito Cuanavale area: he ordered intensive reconnaissance. On 16 January 1988, a pair of Cuban-flown MiG-23MLs detected a lonesome Olifant tank 'a few kilometres east of Cuito', and then tracked it until finding an entire mechanised unit of the SADF. They called for help from Menongue, and as a result, the South Africans found themselves on the receiving end of air strikes by eight MiG-23MLs, each armed with four parachute-retarded OFAB-500ShN bombs.[9]

Moreover, Ochoa ordered the 70th Tank Brigade to deploy its Tactical Group 71 – which included an infantry battalion, and a battalion each of T-55s and T-62s and was commanded by Colonel Venancio Avila Guerrero – from Menongue to Cuito Cuanavale. The unit reached the combat zone on 21 January and entrenched along the western bank of the Cuito River (with this, the FAR had a total of 1,500 officers and other ranks in the Cuito Cuanavale area). Further west, a tactical group of the 60th Tank Brigade, ATS, was redeployed from Jamba to take positions vacated by the 70th Brigade while the 30th and 80th Tank Brigades deployed a total of four tactical groups in the direction of Menongue. Meanwhile, the headquarters of the Cuito Cuanavale garrison were ordered to prepare a counterattack on their own. For this purpose, the 8th BrI was freed from the task of securing the road from Menongue (this was now protected by just the 10th BrI), and temporarily assigned to the CO of the 21st BrI. On 18 January, the rebuilt brigade attacked in the direction of its former positions: forewarned by their SIGINT, the South Africans and the 3rd Regular Battalion FALA quickly withdrew to avoid unnecessary losses, and thus the Angolans recovered their positions without much ado.[10]

At that point in time, Fidel Castro became involved with one of his frequent interventions. Concluding that the FAPLA's first defence line was too exposed, he ordered this to be entirely evacuated, and the units withdrawn to bolster the defences of the second line:

> The defence perimeter east of the river should be reduced by pulling back the 59th and 25th Brigades towards positions that are well fortified and closer to the river…. The current positions of the 59th and 25th are very risky…. We can't continue taking such risks…'

Certainly enough, this order was never fulfilled, eventually contributing to Castro's decision to sack Ochoa. This is what led to the biggest Angolan-Cuban blunder of the battle.[11]

Collapse of the 21st Brigade

Apart from repeated exchanges of air strikes and artillery barrages, nothing happened for the next few weeks. The Cubans, who were in the process of deploying massive reinforcements to Angola (see the next chapter for details), exploited this opportunity to rush several huge supply convoys – each including more than 100 big Ural trucks of Soviet origin – to Lubango, Menongue, and Cuito Cuanavale.[12]

Meanwhile, the South African commanders had already opted to redirect their attention to the centre of the first Angolan defence line: to use FALA to tie down the 21st BrI, and attack and destroy the 59th BrIM. However, this operation was postponed several times because of continuously growing logistical difficulties and unsuitable weather. Thus, it was only on 13 February 1988 that the SADF and FALA moved out into a new assault – in coordination with the 32nd Battalion's strike on Menongue AB, as described above.

At 08.30hrs on 14 February 1988, the SADF artillery opened the preparatory barrage, while two semi-regular battalions of FALA initiated their advance on the positions of the 21st BrI. To reinforce the impression that this Angolan brigade was the primary target, the 4th SAI and the 3rd Regular Battalion FALA manoeuvred to the north of the first Angolan defence line – before turning south in the direction of their actual target: the 59th BrIM. Meanwhile, the 61st Mechanised Battalion – decimated by jaundice – moved right in between of the positions of the 25th BrI and the 59th BrIM, thus covering the flank of the main effort. All these moves took place amid thick fog and low cloud cover, both of which shielded the advancing units from Angolan and Cuban air power.

Around 14.50hrs, the two semi-regular insurgent battalions launched their assault on the positions of the 21st BrI from two different directions. Despite suffering heavy losses, they managed to secure several field fortifications. Around the same time, the 4th SAI and the 3rd Regular Battalion of FALA initiated their assault on the 59th BrIM. As usual, the dense bush rapidly converted this into a short-range clash, but Olifants from the Regiment Molopo and Ratel-90s of the 61st Mechanised Battalion managed to knock out several T-55s and ZU-23s. At that point in time, the morale and cohesion of both the 21st BrI and the 59th BrIM collapsed, and their troops began to flee en masse. The 4th SAI thus managed to overrun the headquarters of the latter around 16.15hrs, quickly overpowering desperate resistance of the Brigade's Cuban and Soviet advisors. Aleksandar Petrovich Sergeev, who served with the neighbouring 25th BrI, recalled:

> The South Africans hit the juncture of the 21st and 59th Brigades, and then the juncture between two battalions of the 59th Brigade, and then moved on the command post of the unit. Our advisors repelled one attack, but then the panic broke out in the foremost Angolan lines: they ran away forcing our advisors in the 21st and the 59th Brigades to fall back.[13]

Desperate Counterattack

Early during the South African assault, Cuban Colonel Alvaro López Miera and his team in charge of the 6th Military Region wrongly identified the 21st BrI as the enemy's *Schwerpunkt* and rushed reinforcements in that direction. By the time they began receiving desperate calls for help from the Cuban and Soviet advisors assigned to the headquarters of the 59th BrIM, it was already too late. Undaunted, they promptly ordered a counterattack by a task force hastily assembled from an infantry company of the 25th BrI, and a company of the 3rd Tank Battalion. Held back as a reserve, the latter unit had a higher proportion of FAR soldiers than usual: indeed, seven of its T-55s were operated by mixed, Angolan-Cuban crews (usually, Cubans served as commanders and gunners, while drivers and loaders were Angolans). Led by Lieutenant Colonel Ciro Gómet Betancourt, the unit moved out, followed by a BTR-60 carrying the Soviet chief advisor to the 59th BrIM, Major Valery Vihrov.

Rushing forward, the relief force ran into scattered groups of fleeing Angolan troops. With the priority being to stop the South Africans before these could reach the second defence line, it took positions along a treeline bordering an open *shona*, roughly along the rear area of the first defence line. With the South African SIGINT getting wind about this deployment, the 61st Mechanised Battalion and the Olifant squadron rushed to intercept the enemy reinforcement – but in turn ran straight into the ambush. The Cuban tankers let the enemy move in front and ever closer to them, waiting to see their command element before opening fire. However, around 17.30hrs, one of their tanks opened fire too soon, thus unmasking the ambush. The result was yet another showdown at ranges of 10 to 30 metres. To add to the chaos, the ZU-23 battery of the 59th BrIM reorganised itself and opened fire at the advancing South Africans from afar, while FAPLA artillery zeroed-in on the area, too. Mike Muller, commanding officer of the 61st Mechanised Battalion, characterised the resulting battle as follows:

> That tank commander was a Cuban, and I think his plan was to take out my HQ group, because he let our first line of tanks go past him when he could have knocked out one of them easily. My intelligence officer told me as we crossed the *shona* he had intercepted a message from the 3rd Tank Battalion to the Cuito Cuanavale HQ saying they had located 61st Mech, and HQ replied with instructions to kill the 61st Mech commander. My command group never saw that tank until we were just past him. It had started moving towards us at speed, with its commander standing up with his head through the open hatch, when Christo Terblanche in a Ratel-20 on my right flank spotted him. It was impossible in that bush to move the Ratel into reverse in time to intercept the tank, so Terblanche leapt down intending to take the tank out by dropping a hand grenade through the hatch. But he couldn't get near because all the 20 mm guns on the Ratels and other machine guns were pouring fire at the tank. Terblanche

> turned back and asked his gunner for his R-4 rifle, but by the time he began to go forward again one of the other gunners had shot the Cuban commander dead as he turned to the right to knock me out. As the commander fell dead during the turning manoeuvre he must have slumped on the controls because the gun barrel drooped and at the same time fired a 100 mm shell which shot out the rear axle of the Ratel next to me. No one was injured, but the Ratel was completely out of the battle because lots of metal and other rubbish from the axle was forced up into its engine. I had two spare tanks behind me, so I brought one of them up to destroy the T-55. It had been a close experience.
>
> It was a very close fight in the dense bush. We were destroying their tanks at only 10 to 30m range while many infantrymen were being killed on the ground with machine gun fire. About 25 minutes into the battle we had advanced only 400m into the bush but had shot out seven of their tanks; four were burning like hell and exploding all the time for an hour or two. That made things very difficult for our infantrymen on the ground, so they were having to take cover or get back into the Ratels. 59 Brigade began to direct 23 mm fire on us from the southwest. The ZU-23 is a hell of a good weapon. You don't hear the shots during battle because there is so much other noise from bombs falling and your own weapons firing. You only see the 23 mm tracers coming at you at four shots a burst. My HQ Ratel came under heavy fire at one time. Luckily we were behind a row of tanks, and one tank at my right front acted as a shield. It was a fantastic sight. The 23 mm shells come at a hell of a speed and there was a kind of white heat with showers of sparks as they hit the tank. But they can't penetrate a tank's armour and they just left a pattern of white dots. One slug took off the radio aerial just above my head: six inches lower and I was dead. After that I ordered all hatches closed. Later there were "bruises" all over my Ratel where 23 mm shells had struck at too sharp an angle for penetration.
>
> The crew of one of my Ratels weren't so lucky. A burst of four 23 mm shells hit their vehicle directly: the holes were 20 cm apart. All four men were killed instantly by flying metal and by the speed of the shells which cause a massive displacement of air.[14]

Considering the small size of the counterattacking force, the engagement proved costly for the SADF: it resulted in two destroyed Ratels, one Olifant badly damaged, and four killed. However, by the time it was over, both the Angolan-Cuban tank company, and the FAPLA infantry company had been decimated. They lost seven T-55s and 14 crewmembers, as well as 25 infantrymen. Only two tanks managed to survive: Lieutenant Colonel Gómet Betancourt's vehicle was changing position all the time; it received several hits but remained operational; the other T-55 broke down before the engagement and took no part in the fighting. Even Virhov's BTR-60 had been destroyed by a shot from one of the South African tanks. However, the sacrifice of the counterattacking force bought the time for the bulk of the 21st BrI and the 59th BrIM to withdraw and sort themselves out without either brigade being destroyed in all-out pursuit. Moreover, it bought the time for the Angolan-Cuban air power to reach the scene once the fog had lifted. Indeed, by 19.00hrs, the SADF and FALA had to withdraw without delivering the 'killing blow', all the time harassed by air strikes: the DAA/FAR contingent at Menongue is known to have flown more than 30 combat sorties that afternoon. Muller concluded: '…the enemy aircraft were permanently in the air, dropping thousands of tons of bombs all over the theatre… throughout hundreds of attacks'.[15]

Cactus into the Fray

Experiencing constantly growing problems with the enemy air power, on 9 February 1988, the SAAF initiated Operation Arno: the deployment of an ad-hoc task force made up of elements of its Air Defence Artillery Group. Commanded by Commandant Johan Van Heerden, this arrived in Menongue including four launchers for Cactus SAMs, a single Tupperware early warning radar, one captured 9K31 Strela-1 SAM vehicle (ASCC/NATO-codename 'SA-9 Gaskin'), six towed ZU-23 guns, and a 24-strong platoon equipped with captured SA-7bs. Moreover, the SADF deployed a field liaison team to improve coordination with the FALA, protected by an infantry company of the 32nd Battalion.

After a march of four days, on 13 February 1988, Van Heerden's anti-aircraft unit reached a position about 30 kilometres north-east of Cuito Cuanavale, with the task of protecting the two G-5 batteries. The four Cactus launchers and the single SA-9 were emplaced in a large *shona* in front of the artillery, to have a clear field of fire at any MiGs passing by. Unsurprisingly, the first pair of MiG-23s came within range the same day, around 18.45hrs, prompting one of the Cactus crews to fire a single missile from a range of 9,000m at a pair of jets underway at an altitude of 4,200m. The weapon missed and it remains unclear if the Angolans and Cubans ever observed its presence. Two days later, one of the South African ZU-23 crews was more successful: on 15 February, it engaged a pair of Cuban piloted MiG-23MLs underway at a very low altitude. The jet flown by Captain Juan Rodriguez was hit by a burst of fire and crashed, killing the pilot who had no time to react.

On 15 February 1988, FAPLA launched a half-hearted counterattack on the former positions of the 59th BrIM. This was easily repulsed and immediately afterwards both the 16th and the 21st BrI were completely withdrawn from Cuito Cuanavale, while the 25th BrI and the 59th BrIM established themselves on the second defence line, just eight kilometres from the Cuito River. Moreover, FAPLA deployed a mix of 5,787 anti-personnel and anti-tank mines to cover its positions. As this was going on, on 16 February 1988, a pair of MiG-21bis flown by Cuban pilots came within range again of Heerden's unit: the jets were underway about 4,000 metres away, at an altitude of only 200 metres. Two Cactus SAMs were fired, and then a FALA team followed up with a Stinger. One of the three missiles proximity-fused near one of the MiGs: according to the South African SIGINT, the shrapnel damaged the hydraulics of the aircraft, casing the pilot to eject shortly before reaching Menongue AB. While no such loss is mentioned by any of available Angolan or Cuban sources, the SADF concluded that it prompted DAA/FAR and the FAPA/DAA to cease flying air strikes on targets east of Cuito Cuanavale. While it is possible that the headquarters in Menongue thus became aware of the presence of a South African SAM system and thus wanted to study the new threat for a few days, actually, the DAA/FAR contingent appears to have been busy fighting a FALA unit active in the Bambi area, about 200km north-west of Menongue where it flew up to 30 strikes on each of 19th and 20 February. Van Heerden exploited the opportunity to redeploy his unit to the Chambinga Plateau. However, once there, it found itself with almost nothing to do: by the end of its deployment it had fired only a single additional Cactus SAM at a pair of MiG-23s, but without scoring any hits. With the Angolans and Cubans perfectly aware of the unit's presence, and regularly searching for it with ground patrols and random artillery fire – and its vehicles proving prone to wear and tear – the anti-aircraft combat group was ordered to withdraw on 26 February 1988.[16]

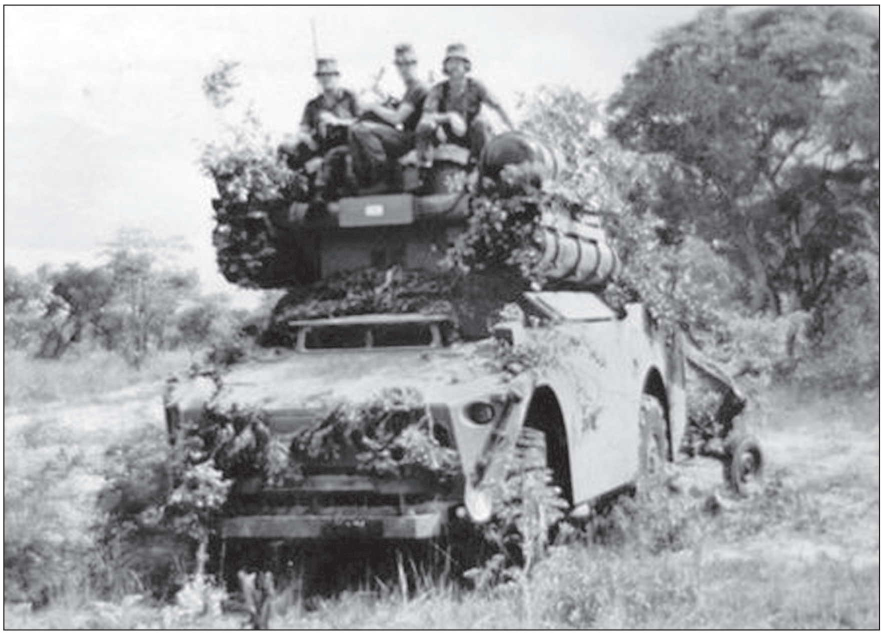
From Bloodhound to Cactus

On 2 May 1969, the Ministry of Defence of the Republic of South Africa announced that it was developing an all-weather SAM system in cooperation with France. Designated Cactus, this was to result in a weapon system capable of engaging targets flying at up to Mach 1.2, at altitudes between 50 and 3,000 metres (154 and 9,842ft), and manoeuvring at 2gs. Actually, this was the official version of the story that can be traced back to the early 1960s, when on the search for a guided surface-to-air missile, South Africa focused on the British-made Bristol Bloodhound ramjet powered system. Pretoria eventually placed an order for Bloodhounds, in 1964, but this was refused by London, prompting the South Africans to turn to Paris instead. In France, Engins Matra and Thomson-CSF (nowadays Thales Group) were already cooperating with Rockwell International and Thomson-Houston of the USA on the development of the R.440 Crotale mobile SAM system. With South Africans agreeing to cover 85 percent of expenses for development and research, and France the remaining 15 percent, further work advanced very quickly and the first test-firing took place in 1965. Series production was initiated in 1968: following additional testing in France: first deliveries to the South African Air Force took place in May 1971, where the system received the designation Cactus.

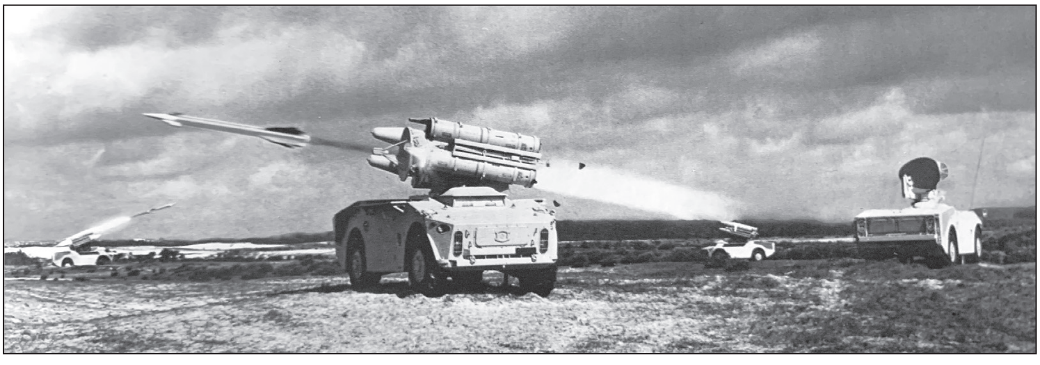
A standard Cactus system was centred on the so-called 'Acquisition Unit'. This was a vehicle carrying the E/F-band Thomson-CSF coherent pulse-Doppler Mirador IV radar, which served for surveillance and target designation out to a range of 18.5km for targets at altitudes between 0 and 3,000 metres and had an integrated IFF-interrogator. As of the mid-1960, this was a very sophisticated, compact, lightweight system, including the SN-1050 digital computer that provided automated target evaluation on advanced displays and required a crew of two only. The single Mirador IV was connected (by either up to 400-metres of cable, or by radio) to up to three 12-tonne, armoured, electrically-powered 'Firing Unit' – TELAR in modern-day terminology – made by Hotchkiss-Brandt. Each TELAR was crewed by three, carried four ready-to-fire missiles in their sealed containers that also served as launchers, and a Ku-band, monopulse fire-control radar providing continuous-wave illumination over a range of 16km. Additionally, the system included a TV camera for optical tracking (necessary if the radar was disrupted by electronic countermeasures): this was aligned with the radar through use of a digital computer.

The R.440 was a slim, 2.98m long missile with cruciform control fins at each end, of which those aft stabilised roll, while those at the front were effective in pitch and yaw guidance. On launch, its SNPE Lens single-stage motor accelerated it to Mach 2.3 in 2–3 seconds, after which it coasted. It carried a 15kg (33lb) pre-fragmented warhead triggered by an infrared proximity fuse and was guided by command guidance via a digital data-link over a maximum range of 12km.

A single TELAR was capable of simultaneously engaging one target with two missiles. This meant that a complete Cactus SAM system could simultaneously engage up to three different targets with up to six missiles – three times more than the contemporary SA-6 of Soviet origin. All the vehicles of a single Cactus system were air-transportable and had cross-country capability.



One of the firing units of Van Heerden's Cactus SAM site, well-camouflaged in the bush. (SAAF)



A photograph showing the crucial elements of a single R.440 Crotale/Cactus SAM site, including three firing units (left and centre; each equipped with a tele-command transmitter, IR-gathering system, and TV tracking system) and one Acquisition Unit with the Mirador IV radar (also equipped with the digital computer and the operating console). (Thomson-CSF release)

Table 6: Equipment of a typical R.440 Crotale/Cactus SAM site

Equipment and Remarks	Number per Site
Acquisition Unit with Mirador IV radar	1
Firing Unit (TELAR)	4
X-band tele-command transmitter	1
IR-gathering system	1
TV tracking system	1
Real-time digital computer	1
Operating console	1

Attack on Point 1251

The South Africans launched another attempt to breach the Angolan defences of Cuito Cuanavale on 20 February 1988. Perhaps in order to distract the attention of enemy commanders – but certainly in line with Pretoria's official list of priorities starting with the PLAN and SWAPO – early that morning eight Mirage F.1AZs of the SAAF bombed a camp of insurgents from South West Africa outside Lubango. Lieutenant Colonel Domingo Carreno Carmona was in command of the air defence units responsible for protection of the town and thus the base in question:

> At seven in the morning, we were busy training the staff to distribute tasks of the day. Then I saw two aircraft flying in the distance. I did not pay much attention about them, because our fighters were regularly passing that area while underway to land at Lubango AB. Suddenly, one of the Angolan farmers living next to our unit came running, shouting, "Boss, boss: that aviation is not ours! It's not ours!" At the first moment, I thought, "Hey, but what's wrong with this man?" – because usually he was very quiet. But then I looked at the aircraft again and saw them making a turn. That was not normal anymore. I reached for the telephone and sounded the air raid alert: the farmer was illiterate, but he knew the South African jets very well. We all ran to our combat posts reaching then by the time the first explosions were heard. I called my troops to locate the aircraft and open fire, but by then it was too late: they retreated at low altitude and there was no option of shooting at them…. From that date onwards, we always kept at last half the air defence crews on their positions, from half an hour before the dawn to 09.00hrs in the morning, from 11.00 until 14.00hrs at noon, and from 17.00 until half an hour after sunset. These were usual times of South African air strikes. If the units were busy with re-deployments of otherwise, at least one group [SAM site] of every brigade had to be on alert.[17]

If the secondary purpose of this air strike was to distract the DAA/FAR and the FAPA/DAA from developments in the Cuito Cuanavale area: it misfired. There, 20 February 1988 began with a combined SADF-FALA force – reinforced by a squadron each of Ratel-20s and Olifant MBTs – attacking Point 1251. This was an outlying – and thus exposed – FAPLA position north of the Dala River, which was held by a single battalion of the 59th BrIM. However, while still approaching enemy positions, the South Africans and insurgents ran into a minefield, and one of the Olifants was damaged. The resulting noise promptly drew the attention of enemy observers and within minutes the area was blanketed by Angolan artillery fire, followed by multiple air strikes. While the latter, reportedly, caused no damage, the shelling certainly caused heavy losses to the insurgents riding exposed on tanks. Nevertheless, the SADF and FALA pushed on, triggering the withdrawal of the Angolan battalion without any resistance.[18]

Reorganisation of the 6th Military Region

This victory proved irrelevant: a day later, on 21 February, General de Division Leopold Cintra Frías arrived in Cuito Cuanavale with Castro's order to reorganise the entire defence system once again. He ordered the construction of the third, much shorter line (only 6km long), just three kilometres from the Cuito River. For a start, this line was protected by 15,319 mines deployed in three belts during the next week. Meanwhile, on personal instructions from Castro, on the night of 24–25 February, both the 59th BrIM and the 25th BrI were withdrawn. The 59th crossed the Cuito River, while the 25th was tasked with holding the last FAPLA bridgehead east of the Cuito: 'Keep a strongly fortified position with no more than one brigade east of the river, with a staggered line of defence and the tanks at the ready in the rear.'[19]

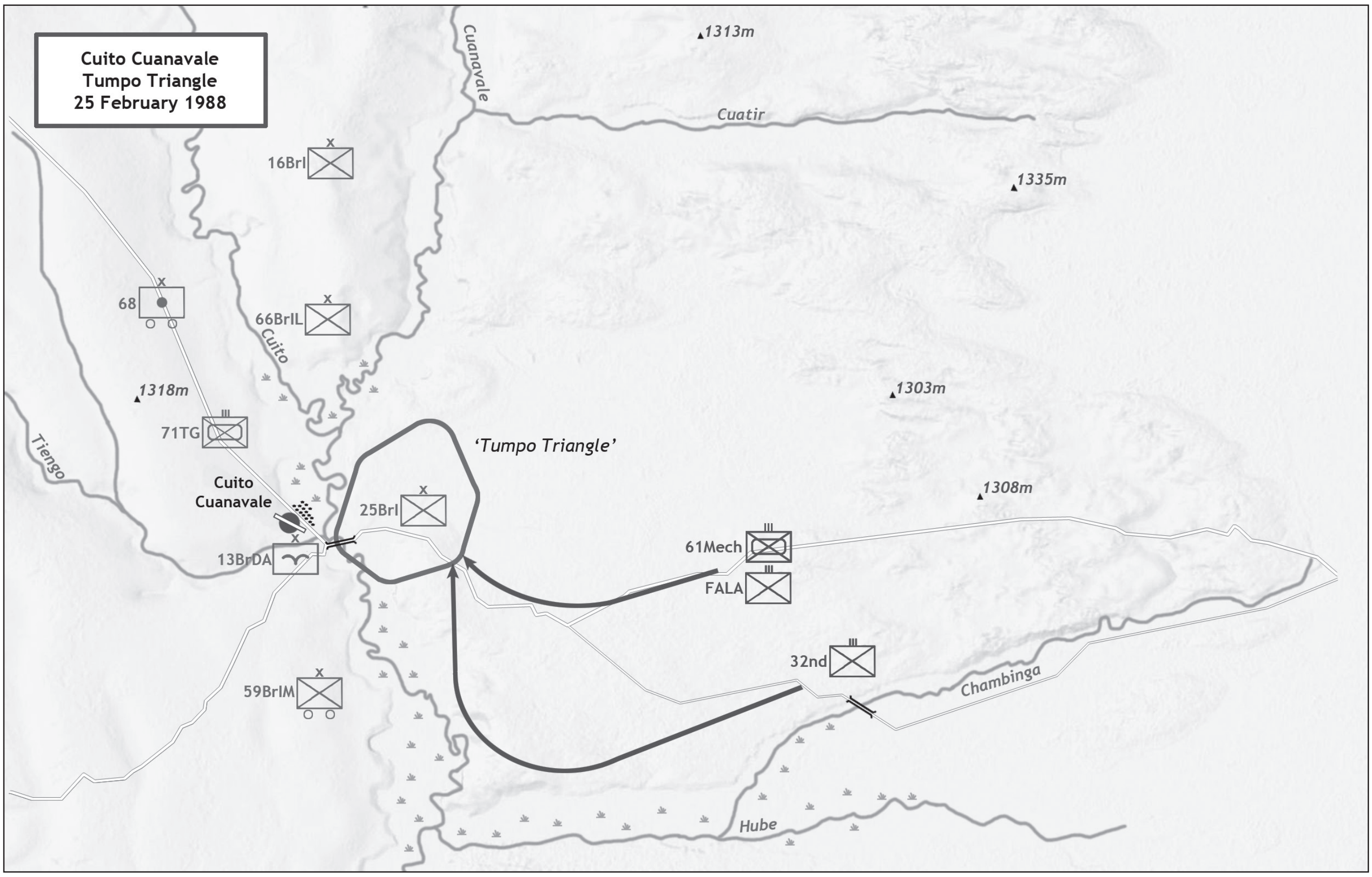
With the 800-strong 25th BrI in its new position (just 600 x 1,000 metres, covered by two minefields), the defence system thus took its definite form. The unit was supported by six ZiS-3 guns, one ZU-23, a single BM-21, three Grad-1P launchers, three 82mm mortars and three of 120mm, and no fewer than 12 B-10 recoilless rifles, plus a full tank battalion of the ATS. The western bank of the Cuito was protected by (from the north-west towards the south-east), the 35th BrI, the 68th Artillery Brigade, the Tactical Group 71 (which defended the road to Menongue), 13th BrDA, 59th BrIM, and the 66th BrIL.[20]

All the listed brigades were on the higher ground west of the Cuito, the Cuanavale, and the Cuito Cuanavale Rivers, and thus their positions were invisible from the eastern side. Moreover, their heavy weapons were entrenched close to the rivers and thus in perfect position to provide direct fire-support for the 25th BrI. All the available heavy artillery from these brigades, and all the tubes and launchers of the 68th Artillery Brigade were reorganised into small batteries of four pieces each (or, in a few cases two guns and two BM-21 launchers). Their crews were instructed to operate strictly in the 'hit-and-run' fashion: hidden when not in action, then rushing into the firing position, firing a few shots or a single volley of MRLS, and then withdrawing. This was expected to minimise their exposure to the deadly South African counterbattery fire. Finally, the forward controllers had a full and unimpeded view of the 30 square kilometres of the Tumpo Triangle.[21]

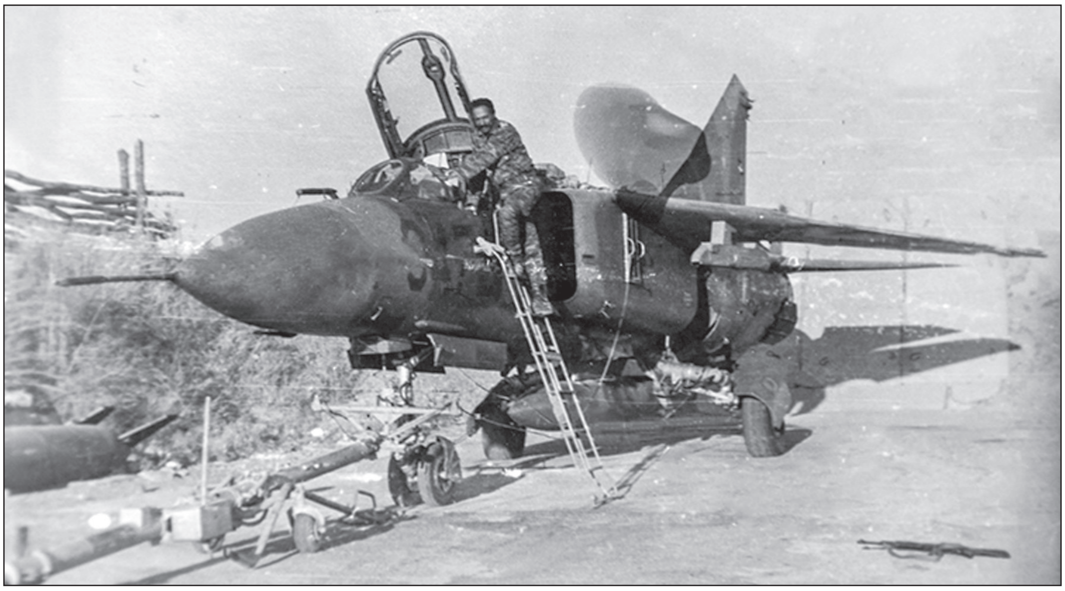
The Stand-off Battle

As surprisingly as ironic, at this point in time through the campaign – when it was obvious that its effort had degenerated into a battle of attrition, antinomic to its own mobile warfare doctrine – the SADF remained insistent on its objective of 'expelling FAPLA from the eastern bank of the Cuito', although this became entirely irrelevant. Indeed, without the deployment of a much more powerful force, it was obvious that no possession of a few dozen square kilometres of the immense expanses of the Cuito Cubango Province could change anything at all in the grand scheme. Nevertheless, the 20th Brigade was ordered to prepare a new assault, this time against the FAPLA second line of defence. Another irony was that the new attack began at dawn of 25 February 1988, just hours after the withdrawal of the 25th BrI and the 59th BrIM.

This time, three companies of the SADF's 32nd Battalion moved on foot towards the southern end of the Angolan defence line, anchored on the source of the Tumpo River. Meanwhile, the 4th



A map of the SADF assault on 25 February 1988. This began with South African and insurgent units finding their initial objectives abandoned by the enemy. The attack continued with them running into multiple minefields and then heavy Angolan barrages and air strikes while attempting to push into the Tumpo Triangle. (Map by Tom Cooper)



A MiG-23ML (serial C472) inside its blast pent at Lubango AB in early 1988. This aircraft belonged to the (third) batch of this type, delivered in February 1988, after Moscow's temporary suspension of shipment of this type to Angola, because of Gorbachev's differences with Castro.. (via Luis Dominguez)

Regular Battalion of FALA launched a diversionary attack to the west, while the 5th Regular Battalion carried out a diversionary attack on the northern side of the enemy line. All three efforts ended in exactly the same fashion: the crack 32nd Battalion approached its target unopposed and – to its great surprise – found it abandoned. The insurgents reported exactly the same: the seizure of undefended trench lines and a few bunkers. However, minutes later, all three units found themselves on the receiving end of the enemy artillery and were pinned down. At that point in time, the 61st Mechanised Battalion – reinforced by two squadrons of Olifants, one anti-tank squadron with four ZT-3s and four Ratel-90s, one anti-aircraft troop with Ystervark SPAAGs, and one platoon each of engineers and 81mm mortars – approached the source of the Tumpo, with the intention of exploiting the 'breakthrough' and then rolling up the entire FAPLA second defence line in its killer blow.

However, while the excellent – and discrete – infantry of the 32nd Battalion approached the abandoned enemy positions entirely undetected, and thus unimpeded, things turned out entirely differently. At 09.00hrs, the 61st stumbled into a big minefield, and four Olifants were damaged. Warned by the sound of detonations, the FAPLA artillery opened up, causing additional problems. The South Africans took until 12.30 to cross the minefields and resume their advance, but by then were subjected to repeated air strikes. Finally, another two hours later, the 61st Mechanised linked up with the 32nd Battalion – when disaster struck: the insurgents riding atop of Oliftant tanks mistook the unusual troops ahead of them, opened fire, and continued firing even after they deployed yellow smoke to identify themselves, as recalled by Major Thinus van Staden of 32nd Battalion:

> The smoke was starting to rise above the trees… I realised we had given a clear target indication to the enemy. I could hear the full ripples start as the BM-21s, the M-46s and D-30s started to deliver rapid fire. Then all hell broke loose around us. We took cover in the trenches, but UNITA were in the open on the tanks. The armour just closed their hatches. Many UNITA were wounded, but only one of my people.

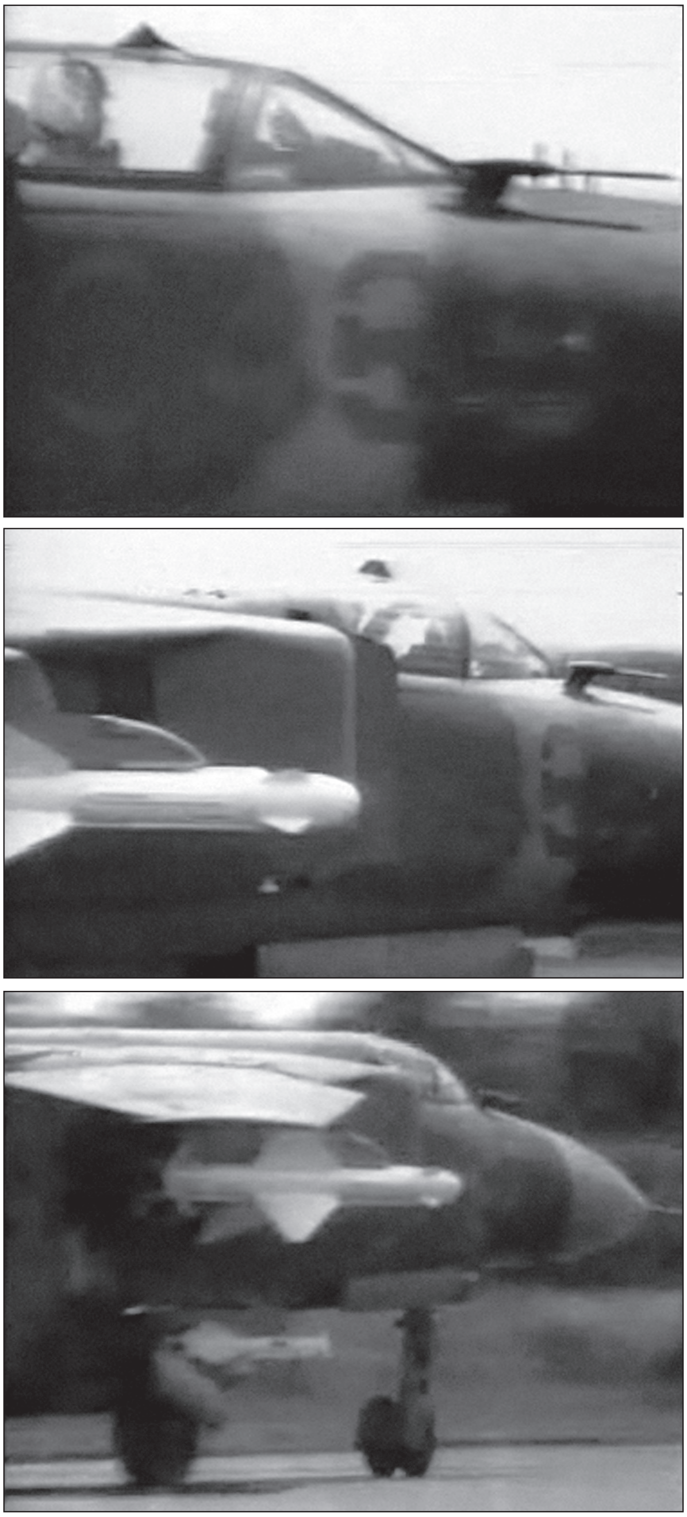
Lieutenant Oleg Akradyevich Grisuk, one of the Soviet advisors witnessing the scene recalled:

> On the opposite bank of the river, we could see the Olifant tanks and Ratel armoured personnel carriers attacking. They were visible to the naked eye. From their side of the river, the Cubans drove out in their BM-21s and stationed them at point-blank range (usually the barrels of the BM-21s were tilted upwards but here they were actually tilted down as they found themselves on high ground). Very rapidly, they emitted a full volley (40 rockets), which exploded among the South African tanks. One BM-21 would repeatedly fire and then another. And this went on for the entire day. A cloud of dust arose from the repeated explosions and nothing could be seen. After all, there were not only BM-21s firing but also artillery, including D-30 howitzers.[22]

Caught in the open, the FALA infantry suffered heavily from the artillery barrage, which went on until dusk. A 130mm round scored a direct hit on a Samil supply truck carrying ammunition, triggering a volcanic conflagration, while a Withings recovery vehicle was blown up by another round. To make things even more problematic for the SADF, the Angolan and Cuban MiGs flew such an intensive series of air strikes on the SADF G-5 guns, that these proved unable to conduct their usual counterbattery action. Although causing no heavy damage or fatalities, the continuous presence and repeated attack runs by Angolan and Cuban fighter-bombers effectively paralysed the enemy. Indeed, Cuban pilots attacked with such ferocity that one of them – 1st Lieutenant Eladio Avila Martinez – ran out of fuel and was forced to make a landing at Cuito Cuanavale Air Base. Although all the time well within range of the SADF artillery, nothing happened: the jet was quickly refuelled and scrambled again without much ado. By the time the inferno created by the Angolan and Cuban artillery and air power was over, one South African had counted 1,350 enemy bombs, shells and rockets hitting the 61st Battalion. By 18.00hrs, five Ratels were disabled, one tank crewman and a MANPAD operator were killed: as so often, FALA losses in this battle remain unknown. What is certain is that the commander of the 61st Battalion was left with little choice but to withdraw, thus ending the 'battle'. Although the SADF eventually managed to extricate all the damaged armoured vehicles, the failed assault of the 25 February 1988 was a clear sign of new times: the assaulting force did not even engage in a direct battle with the enemy – and thus proved unable to inflict any kind of losses in return – but was repulsed by massive volumes of artillery fire.[23]

G-5s in Trouble

While the 61st Mechanised Battalion was trying to reach the Angolan second line of defence, a related drama was developing further north-east, where the DAA/FAR contingent and the FAPA/DAA flew a series of air strikes on the positions of South African G-5 guns. By this time, the Cuban MiG-23ML pilots – who considered these guns their most challenging targets, because they were well-protected and changing positions frequently – refined their tactics. They would send four or six jets in two or three well-separated pairs. The first would approach at low altitude and high speed, seeking the target and report its position to the other pair (or pairs). The latter



The DAA/FAR contingent in Menongue constantly kept at least one, sometimes two MiG-23MLs on quick reaction alert, and they were scrambled whenever the radar stations in Cuito detected any South African fighter-bombers. These three stills from a video show the MiG-23ML serial number C469 in the process of scrambling from Menongue AB, armed with R-24R medium-range and R-60MK short-range air-to-air missiles. (Mark Lepko Collection) would approach at an altitude of 5,000–6,000 metres and then bomb from a dive at 45–47 degrees.[24]

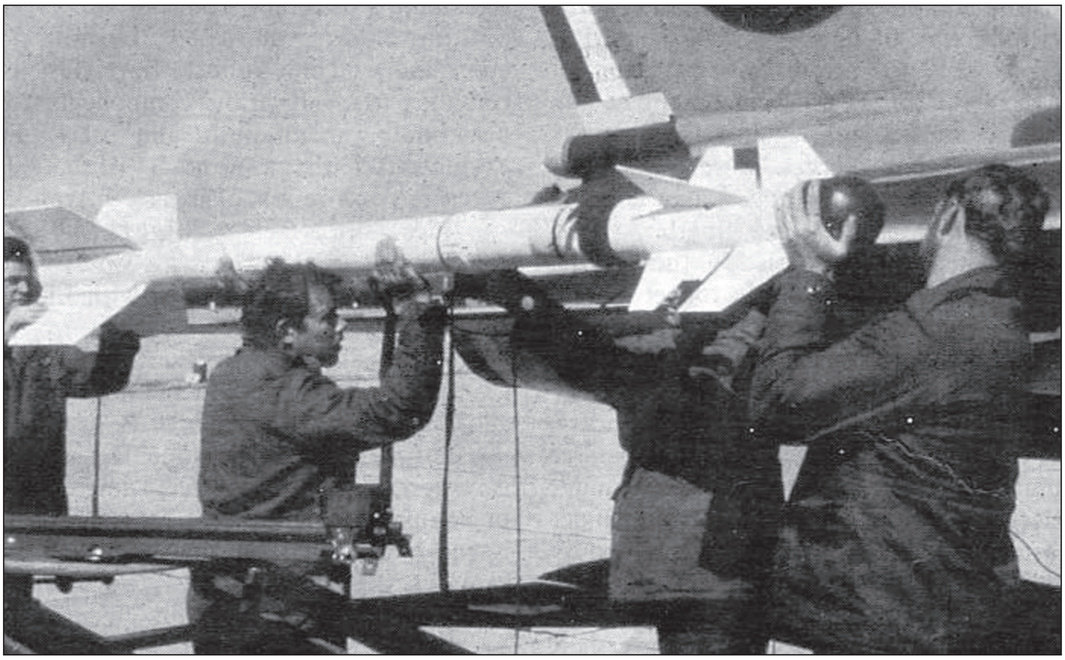
The refined tactics seems to have caused enough of an impression on the other side to prompt the SAAF into action and several formations of Mirage F.1s were dispatched towards the combat zone during the afternoon of 25 February 1988. However, they failed to intercept any MiGs that were still active: the battlefield was now so far away from the SAAF radar installed at Rundu AB, that due to the Earth's curvature it was capable of detecting only aircraft operating at altitudes above 7,000m (23,000ft) – where neither the Angolans nor Cubans were flying. On the contrary, the P-37 surveillance radar in Cuito Cuanavale picked up some of the SAAF activity and controllers of the combined Angolan-Cuban control centre vectored a pair of Cuban piloted MiG-23MLs armed with R-24 and R-60MK air-to-air missiles to intercept. Following a high-speed pursuit, the two MiGs finally began to approach their targets. However, the SAAF Mobile Operation Team including a Chilean Air Force pilot was still in the combat zone, and intercepted the enemy radio communications indicating the Cubans were tracking the Mirages: correspondingly, Major Willie van Copenhagen and Captains David Kleynhans and Reg van Eeden turned to fight. By that point in time, both Cuban pilots were short on fuel and turning away.

The Last Air Combat[25]

A while later, 1st Lieutenant Ricardo Rafael López Castillo of the DAA/FAR, the main ground controller in Cuito Cuanavale, detected a target over 50km south of his location. As of 25 February 1988, it was more than five months since the last encounter with Mirage F.1s of the SAAF: certainly enough, the South Africans were still flying regular airstrikes on selected targets, but – much to the frustration of Angolan and Cuban pilots – they were never detected in time to affect an intercept. As the battle east of Cuito Cuanavale was reaching its high point, the majority of MiG-23MLs forward deployed at Menongue was configured for air-to-ground operations: reconfiguring them for an air-to-air mission would require a relatively complex replacement of underwing pylons with large launch rails for R-24R/T air-to-air missiles. Therefore, the Angolans and Cubans kept only one MiG on quick reaction alert, armed with one R-24R and one R-24T, and a pair of R-60MKs, in addition to full load of ammunition for its internal 23mm cannon. Indeed, at the time Castillo's Soviet-made P-37 radar picked up the approaching Mirages, even this MiG-23ML was airborne: Avila was tasked with providing top cover for several helicopters. Castillo advised him to search for high-speed targets at low altitude about 25–30 kilometres south-east of Cuito. The MiG approached the area but could not detect anything with his Sapfir-23MLA-II radar, and the ground controller finally advised Avila to dive after two 'blips' heading west.

Unknown to the Cubans, by this time the SAAF pilots had begun flying in rather unusual three-ship formations, instead of the more usual usual pairs. Avila sighted only two of the Mirages, but decided to engage and accelerated to 1,100km/h, aiming to attack the nearest with R-60s. However, in his excitement, he forgot to uncage the seeker heads of his R-60MKs from the radar and to let them search for targets autonomously, and because he could not establish a radar lock-on, neither missile provided the usual growling signal to confirm it was tracking its target. By the time Avila realised his mistake and had uncaged missiles, milliseconds later, it was too late: he was less than 1,000 metres behind the Mirages, rapidly overshooting, and the South Africans spotted him and made a hard break to avoid. While trying to track one of the Mirages into the turn, Avila saw a light flashing on his instrument console, warning him that there were only 600 litres of fuel remaining in the internal tanks of his MiG. Confronted with numerically superior enemy, and short on fuel, the Cuban was left with little option but to disengage. He rolled out of the turn, activated the afterburner and disappeared in a western direction. Indeed, Avila's fuel status was so critical, he was forced to land in Cuito Cuanavale to refuel. As soon as his wheels touched the runway, South African G-5s began shelling the air base. Undeterred, the pilot jumped out and, supported by Castillo, who emerged out of his shelter, quickly filled the tanks of C476 with 2,000 litres of kerosene. Back into the cockpit, he relit the engine, rolled to the runway and took off again, with 155mm shells bursting in the distance.

About an hour later, Castillo's fine-tuned R-37 detected the approach of another South African formation. By that time, another MiG-23ML – serial number C476 – had been reconfigured for the air-to-air mission at Menongue, and promptly scrambled piloted by Captain Orlando Carbó Gálves. As soon as he contacted the ground control in Cuito Cuanavale, Castillo informed him about the presence of enemy jets about 30 kilometres north-east of the town, ordered him to accelerate and activate his radar. Turning into the threat, Gálves made a several sweeps with his radar: in one instance, he detected a target about 8,000 metres away – but then soon lost it again. Aware of the direction in which to search, a few seconds later he sighed a Mirage far below him, underway at a tree-top level and reported it to Castillo. The ground controller ordered him to



Armament specialists of the SAAF installing a V-3B Kukri infrared homing air-to-air missile on the wingtip launcher of a Mirage F.1. (SAAF)

A still from a video taken during the flight testing of the V-3B, probably sometime in the early 1980s, showing a Mirage F.1 releasing a missile from its wingtip launcher. (SAAF)

descend to 1,000 metres altitude and accelerate: Gálves curved to the left, accelerating to 1,100km/h while descending to less than 1,000 metres and preparing to attack. However, a second later, Castillo's P-37 radar detected two other Mirages approaching the lonesome MiG from the right side, with the lead in a good position to attack: once again, the SAAF took the Cubans by surprise by deploying three F.1AZs. Unknown to the Cubans was that the radio communications between Castillo and the MiGs he was directing that day were all intercepted by the mobile team including two Chilean pilots, who radioed a warning to the SAAF pilots, enabling them to attempt setting up an ambush for the lonesome MiG. Realising he was facing three Mirages, Carbó wrestled his jet into a right-hand turn while accelerating and watching the enemy behind him. The South African formation leader then manoeuvred behind what he thought was 'one of the MiGs', but even rolling out dead astern, he was outside the range of his V-3B Kukri air-to-air missiles. Nevertheless, he fired both, then switched to guns and fired again, in attempt to force the opponent into a turn that would slow him down.

Meanwhile, Castillo ordered Gálvez to disengage and return to base. Almost supersonic, the pilot looked right to see a missile approaching him. At this point in time, his training took over: in the right moment, he made a high-g break, causing the first two missiles to miss. Seconds later, still in a turn, he heard the third missile – fired by Trompie Nel – proximity fusing near the tail: the jet shuddered but remained responsible. With his nose now pointed in the rough direction of Menongue, Gálvez swept his wings fully to the rear and accelerated while diving to an altitude of 20–30 metres above the ground. Within seconds, his MiG-23ML was supersonic, leaving three frustrated Mirage pilots well behind him. Their jets could not follow his speed. Although very short on fuel – by the time he disengaged, the MiG was down to 800 litres in its internal tanks – Orlando Carbó Gálvez managed to reach Menongue and land safely: the engine quit working as his wheels touched the runway. As far as is known, this was the last air combat between MiGs of the DAA/FAR contingent in Angola, and Mirages of the SAAF.

ZU-23 Inferno

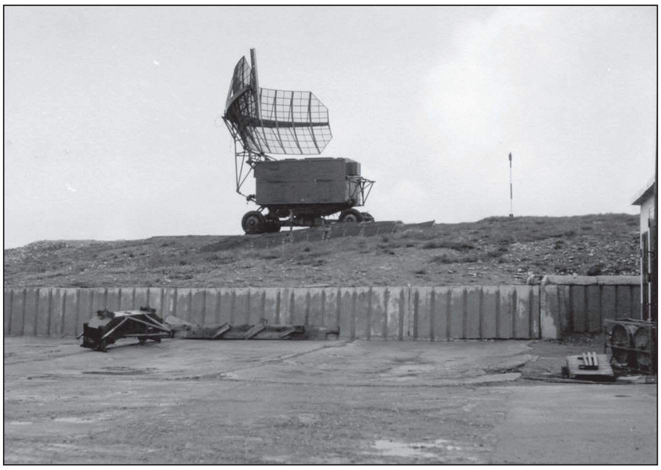
For the 20th Brigade, SADF – scheduled to withdraw in early March – the time to accomplish its final goal was now running out. Nevertheless, the South Africans opted to hurl it into another assault before the end of Operation Hooper. This time, and in attempt to mitigate the overbearing enemy artillery and air strikes, the South Africans opted for a nocturnal attack from the north-east, accompanied by a diversionary attack from the south, where earlier offensives had taken place. Once again, it was up to the 61st Mechanised Battalion to deal the main blow: its commander, Mike Muller, had one Ratel-90 squadron, one mechanised company mounted on Ratel-20s, two infantry companies from the 32nd Battalion, one section of combat engineers, one mortar platform, an electronic warfare team, and the 3rd and 5th Battalions of FALA under his control. His artillery support was significantly improved, because the SADF gunners had made all 12 G-5s operational again and restocked their ammunition supply. However, while nominally commanding two squadrons of Olifant MBTs, he actually had only 10 of these available. Moreover, mine-rollers for the tanks arrived only on the night before the attack, while the driver's night vision equipment on five of the Olifants was not working. All of this was unsurprising considering all the vehicles involved had been in need of routine maintenance for weeks, while stocks of spares were largely exhausted. Nevertheless, thanks to cloudy and rainy weather, Muller decided to press on: he merely delayed the attack to the dawn of 29 February 1988.

On 1 March 1988, the columns of South African and insurgent units began their advance and encountered no resistance while transiting the Tumpo Triangle covered by dense bush. By 11.00hrs, they reached the floodplain of the Cuito River, just four kilometres short of the bridge. However, exactly at that point in time, just as the attack on the 25th BrI was to be initiated, the rain ceased and the sky cleared. Almost immediately, the South African armour came under fire from several ZU-23 guns, emplaced on the western bank of the river. These were followed by a heavy and sustained barrage from 120mm mortars. To make matters worse, the South Africans then ran into a dense minefield, and MiGs appeared overhead too. Fortunately for the SADF, a formation of MiG-23MLs bombed the Angolan positions and in turn the jet with the bort number C442, piloted by Captain Juan Pérez Rodriguez 'Capri', was shot down either by FAPLA anti-aircraft fire – or by a Stinger fired by FALA – and its pilot killed. Supported by G-5s, the South Africans poured intensive fire into enemy positions, starting a vicious, 50-minute-long exchange of fire, during which they managed to cross about 1,000 metres of the minefield, approaching the Angolan and Cuban positions to the extent that the gunners operating the M-46s could not use indirect fire anymore. Moreover, the counterbattery actions of the SADF G-5s once again proved highly effective, and either knocked out numerous FAPLA artillery pieces or forced them out of the battle. However, four Olifants were out of action by the time they entered the range of the B-10 and SPG-9 recoilless rifles, 9M14 Malyutka anti-tank guided missiles (ASCC/NATO-codename 'AT-3 Sagger'), and AGS-17 grenade launchers. Muller recalled the resulting inferno:

> I can't begin to describe to you how incredibly heavy the encounter was…. We fired many hundreds of rounds from the Olifants, the

Castillo the Navigator: the Cuban Ground Controller[26]

1st Lieutenant Ricardo Rafael López Castillo, in a forward position during the fighting in the Cuito Cuanavale area in early 1988. (via Alex Diaz)



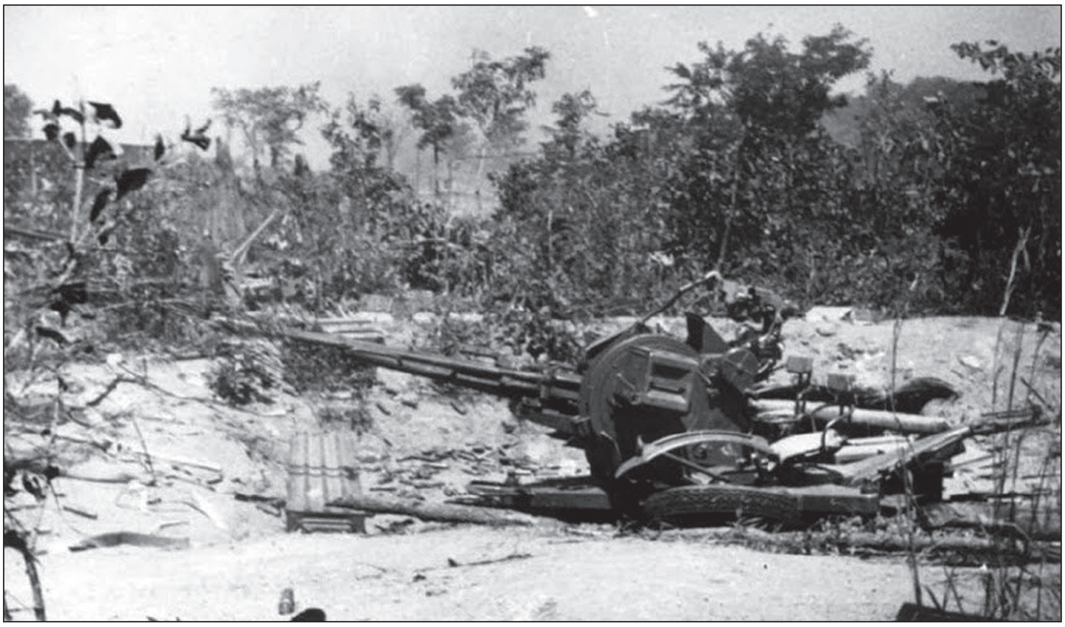
A Soviet-designed and manufactured P-37 radar of the DAA/FAR (here without the lower PPK antenna, installed on the front side of the cabin), as used by 'Castillo the Navigator' to guide Angolan and Cuban pilots in the Cuito Cuanavale area in late 1987 and early 1988. (via Alex Diaz)

The man who vectored Captains Avila and Gálvez through their missions of 25 February 1988 was perhaps the most distinguished ground control officer of the DAA/FAR deployed in Angola at the time: Ricardo Rafael López Castillo. He arrived in Angola in July 1987, at the age of 24 and the rank of 1st Lieutenant. In September, he was reassigned to Menongue, and then sent to Cuito Cuanavale, eventually becoming the longest serving Cuban ground controller in the area and earning himself nicknames like 'Castillo the Navigator' or 'Cuban Nostradamus'. The reason was that Castillo went well beyond what was expected from him in regards of fine-tuning the P-37 radar he used for air traffic control. He regularly joined the troops on the frontline to monitor enemy positions with high-power binoculars, in attempt to provide precise targeting information to MiG-21 and MiG-23 pilots:

> When I came to Cuito, the first thing that hit me was that I was the only Cuban at in the air traffic centre. I had to get used to the food and living conditions of the Angolan armed forces. We were based outside Cuito Cuanavale air base and operating three radars – P-37, P-18 and P-19 – all of Soviet origin. All crews were Angolan, and we had a young Soviet officer named Vladimir who helped me a lot. During the first few months of my tour there, between September and November, whenever the South African air force was operating it deployed strong electronic countermeasures, causing problems to the P-37.

Ratels and our mortars, and gradually we began to pick off their gun positions. The enemy's 23mm guns were again particularly daunting. UNITA suffered very badly. They were our main infantry, responsible for killing enemy infantry carrying RPG-7s on the ground within range of the Olifants while our tank and Ratel guns concentrated on the enemy tanks and artillery emplacements.

Those 23mm guns were just wiping the UNITA blokes off the tanks…. The first 23mm fire we drew came from the west bank of the Cuito and it went over our heads. Then a burst came between the Olifants and the Ratels. You only see the 23mm



A ZU-23 (also referred to as the ZU-23-2) towed automatic cannon in its typical position in the bush. With a cyclic rate of fire of 600–700 rounds per minute, and a muzzle velocity of 1,050 metres per second, this was a fearsome weapon both in air defence and in ground combat. The weapon could be fired from the travelling position, or concealed in a shallow pit in the bush, as in this case. (Albert Grandolini Collection)

Castillo in his 'typical' forward position: atop a tree, using a rangefinder to estimate enemy positions, prior to guiding air strikes on them. (Albert Grandolini Collection)

From December, when Angolan troops were defending themselves in the vicinity of Cuito Cuanavale, the enemy aviation principally operated from the Rundu AB, in Namibia. After monitoring them for a few days, I realised that electronic countermeasures usually appeared about 20 minutes before Mirages would attack and lasted for up to 40–45 minutes. South African pilots flew well: their engines were very efficient at low altitude, enabling them to follow the flow of rivers on the way in, directed by small radio relays deployed by their reconnaissance groups, usually in the trees. They also knew the area well.

Late in the afternoon of 14 February, they launched several air strikes, aiming to instil fear into the Angolan fighters. They were impressive to watch…. The enemy electronic countermeasures were highly efficient, forcing me to change the working frequency very often…. To better guide our pilots, we set up a small platform in a tree, to which I climbed with a map in my hands, my notebook and a radio. I would then verbally direct them, because that was simpler and pilots quicker to react… sometimes I took the APM-90 [radio] to the Cuito Bridge, because it was easier to direct pilots from there. During the Battle of Cuito Cuanavale, all the air strikes by our air force were my responsibility. The hardest thing for a ground controller was when one of the aircraft under his control is shot down. Fortunately, this never happened to me.

I ate very little and became very skinny, in danger of getting sick. Thus they ordered me back to Menongue. Lieutenant Eladio was running a daily fuel-delivery run to Cuito. The enemy shelled the runway every time he landed, trying to destroy his aircraft. I relaxed only once we were in the air. I was out of Cuito on 23 March 1988.

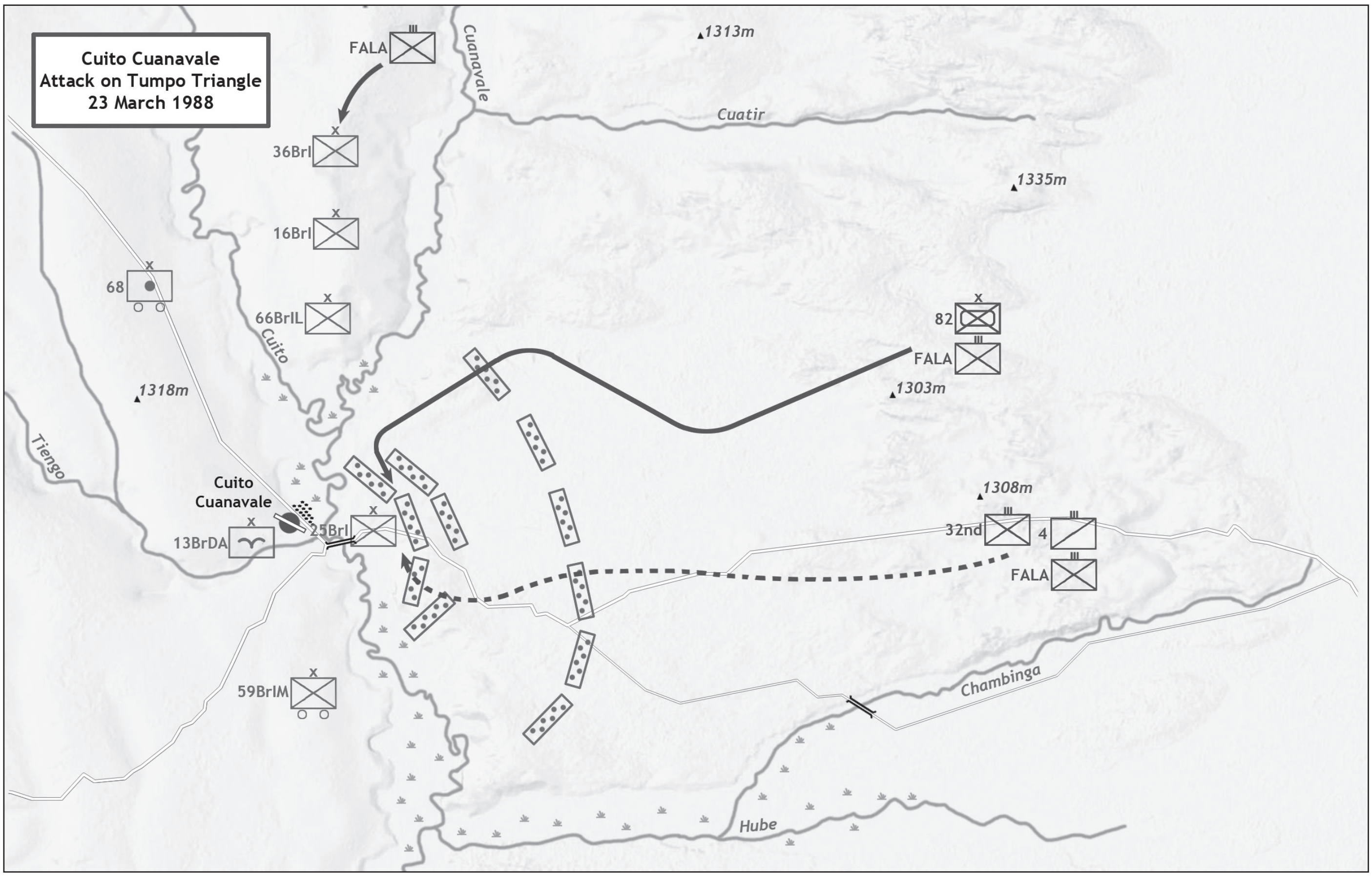
> tracers. There's so much other noise that you don't hear the shots. In front of my command Ratel there was an Olifant with five UNITA infantrymen sitting on its engine plate. As they jumped off one of them was hit in the face with a 23mm shell. His head just disintegrated.'[27]

Still stuck in the minefield and under massive volumes of enemy fire that caused devastating losses to the 5th Regular Battalion of FALA, the South Africans were left no option but to withdraw. This was initiated during the mid-afternoon, when their SIGINT warned them about a possible counterattack by enemy armour. Although two Ratels were knocked out by hits from ZU-23s, the SADF did not lose a single soldier killed in action and managed to tow away all the Olifants knocked out by mines or immobilised by malfunctions of their worn-out engines. However, this was to prove their final attack on Cuito Cuanavale, and a clear-cut victory for General de Division Leopoldo Cintra Frías.[28]

Final Attempt

Through early March 1988, the SADF ended Operation Hooper, and replaced the 20th Brigade with the 82nd, which initiated Operation Packer. Commanded by Colonel Paul Fouché, the new unit was roughly the same size, including two squadrons of Olifants, one of Ratel-90s, and two mechanised infantry battalions. However, its artillery component was slightly weaker: it included only one G-5 battery, one battery of older G-2s, and one with 120mm mortars. Two troops of Valkiri MRLS rounded it off. The major difference was that the 82nd Brigade was almost entirely staffed by reservists recalled for this campaign and rushed through inadequate training courses. Moreover, the FALA component at Fouché's disposal was much weaker: the 3rd, 4th, and 5th Regular Battalions were still around, but the latter was down to fewer than 200 insurgents fit to fight. Nevertheless, the task of the brigade remained almost the same: it was to secure the Tumpo Triangle by the end of March. The disposition of FAPLA units in the Cuito Cuanavale area remained the same, but General Cintra Frías left the 6th Military Region on 6 March and was replaced by General de Brigade Miguel Lorente Leon and his team.

In preparation for their next move, the South Africans attempted to confuse the enemy commanders. In mid-March 1988, the 32nd Battalion, SADF, and the 4th Regular Battalion, FALA, were ordered to start clearing minefields along the south-western approaches to the Tumpo Triangle. Their activity was eventually detected by the enemy and the DAA/FAR contingent at Menongue reacted with another series of air strikes. During one of these, on 17 March 1988, the MiG-23ML flown by Captain Ernesto Chávez was shot down by an Ystervark of the SADF, and the pilot killed. [29]



A map of the SADF assault on 23 March 1988. After advancing over abandoned FAPLA positions, the 82nd Brigade and accompanying FALA infantry ran into multiple minefields and then a massive artillery barrage. In the light of severe casualties to the insurgents, both units were left with little choice but to withdraw. The dotted line depicts the planned southern prong of advance by the 32nd Battalion, the 4th Reconnaissance, and the FALA infantry, which was cancelled. (Map by Tom Cooper)

Meanwhile, the FALA deployed two semi-regular battalions to the western bank of the Cuito River, accompanied by a forward artillery observer of the SADF. On 21 March, this force attacked the 36th BrI about a dozen kilometres north of Cuito Cuanavale. Once again, the DAA/FAR contingent and the FAPA/DAA reacted with air strikes. Indeed, these were continued even after sunset. The last known pair of MiG-23MLs involved was piloted by Lieutenant Colonel Trujillo Hernández and Captain Carlos Rodriguez Pérez 'Gordo'. They attacked the FALA unit almost at midnight. However, on return to Menongue AB they were fired upon by friendly antiaircraft guns, fortunately for the pilots, without consequences. A day later, another semi-regular battalion of insurgents attacked the 13th BrDA on the western side of the Cuito River (suffering heavy losses in the process), while another harassed the 25th BrI: once again, both insurgent units found themselves exposed to air strikes in return.[30]

However, these diversionary attacks served their purpose: the Angolans and Cubans were distracted enough for the main strike force of the 82nd Brigade to start assembling at its departure line, where it met the 5th Regular Battalion, FALA, during the evening of 22 March 1988. This time, the South Africans intended to push their Olifant MBTs forward and literally bulldoze through the positions of the 25th BrI, in order to enable the 32nd Battalion, the 4th Reconnaissance Regiment, and the FALA infantry to reach the Cuito River Bridge and blow it up.[31]

The new attack was initiated at dawn on 23 March 1988, a few minutes after 06.00hrs, with the 82nd Brigade marching in two parallel columns. At first, the South Africans encountered only some random harassing fire from the enemy, but then a false air raid alert prompted them to disperse, throwing both columns into confusion. It took nearly two hours to reorganise all elements and start moving again, but then both columns hit the first minefield. Clearing the paths through these took until midday because only one Olifant with a mine-roller was available, while the sole available Plofadder mine-clearing systems failed to work. By this time, the FAPLA artillery had begun to engage, but the South Africans were shielded because the minefield was on a slope outside the direct view of the enemy.[32] Once out of the minefield, the 82nd Brigade deployed from columns into lines and then crossed the low hill in front – but almost instantly came under fire from multiple directions and different weapons systems, including BM-21s, 100mm tank guns, AT-3s, and the dreaded ZU-23. Major Aleksandar Petrovich Sergeev monitored the battle from positions of the 25th BrI:

> Captain Ngondo, the Brigade Commander, personally fired from one of his mortars… from a trench located at the command post…. He saw where the UNITA forces were and fired that area, hitting them again and again. Standing close by was the captain of the artillery brigade and our advisor, and the Angolan Chief-of-Staff. The three of them operated this mortar…a Cuban tank battalion across the river made a special impression. It moved rapidly through the savannah. It didn't really amount to a battalion, consisting of only 12 T-55 tanks. They jumped out into the high bank and began to shoot at the South Africans at point-blank range. And how they began to shoot! The Olifant tanks stood in full view facing them. The entire South African force opened fire from the thickets. There was so much dust, fumes, and ashes that one couldn't see anything….

FAPLA troops with a captured Olifant Mk 1 tank of the 82nd Brigade, late on 23 March 1988. Such trophies were of immense propaganda value for FAPLA troops in particular, because many of them were convinced that their weapons could not harm white soldiers. (Albert Grandolini Collection)

> The performance of the ZiS-3 76mm guns positioned on our side made a pitiful impression. They could not fire upon armour from such a distance. They could only drive out the infantry. There were six ZiS-3 guns and each one discharged at least 20 shells…we also used our Strela-10 anti-aircraft rockets to attack the enemy force at point-blank range. The effect was striking – firing from the other side was immediately reduced. It was evident that they had been caught by surprise because the rockets had been shrouded in smoke, unlike those from our BM-21s. Suddenly, four guided rockets would rise from our trenches and strike them.[33]

Still pushing forward, the South Africans then hit the second minefield: within seconds, three Olifants – including the only one pushing a mine-roller – were immobilised. Crucially, the Cubans reinforced this minefield by doubling their anti-tank mines, and coupling them with buried Grad rockets, or boxes of 22kg of TNT. This proved devastating: the usual detonations by anti-tank mines were enough to break the track of an Olifant tank or tear off a single idler. Now entire suspensions were torn off, making their recovery extremely difficult. The unprotected FALA infantry around the tanks were decimated by mines and fire, and the South Africans eventually managed to recover only one of their damage tanks. By noon, the MiGs were in the air too, adding to the carnage in which the insurgents suffered up to 400 killed. Finding no way forward, the 82nd Brigade began withdrawing, leaving two abandoned tanks behind it: another was lost while transiting the first minefield on the way back. FAPLA thus obtained three highly symbolic trophies – which were even more important because Pretoria was all the time insistent that no SADF troops were deployed inside Angola at all.[34]

In the air, the situation was similar: a formation of four Mirage F.1AZs underway to strike FAPLA units was forced to abort when reaching the area of the Chambinga River – due to a combination of bad weather and the presence of MiG-23MLs. In turn, a troop of Ystervarks attached to the 82nd Brigade claimed a MiG-23 shot down on 23 March. Subsequently, the SAAF withdrew all of its fighter-bombers from Grootfontein AB.

The 'biggest Battle in Africa' – that never was

The failure of the attack from 23 March effectively ended Operation Packer – and all further South African attempts to expel FAPLA from the eastern bank of the Cuito River. The 82nd Brigade was withdrawn from Angola soon after, and replaced by Combat Group 20, commanded by Commandant Piet Nel. Essentially, this was a holding force, consisting of the anti-tank squadron of the 32nd Battalion, an infantry company from the 101st Battalion, one battery each of G-5s and Valkiris, and two troops of engineers. Accompanied by three battalions of FALA, Combat Group 20 was mainly busy deploying extensive minefields with the aim of preventing FAPLA from advancing east of the Cuito River. Accompanied by frequent artillery barrages by G-5s and Valkiris, this activity – Operation Displace – continued until the end of August 1988, when the SADF withdrew from Cuito Cubango Province, thus ending the Battle of Cuito Cuanavale.[35]

Angolan and the Cuban air forces remained active in the Cuito Cuanavale area through April. On the 1st of that month, six MiG-23MLs found and bombed the G-5 battery assigned to Combat Group 20, wounding one of the gunners. Another, similar air strike on the same unit was reported two days later, but this time all the bombs missed their targets. By that point in time, helicopters of the DAA/FAR contingent and the FAPA/DAA had made 1,136 flights from Menongue to Cuito, carrying 4,324 troops and 512.4 tons of cargo. Cuban fighter-bombers flew a total of 1,492 hours and 10 minutes, accumulated in the course of 753 combat air patrols, 982 ground attacks, 80 visual reconnaissance flights, and two photo-reconnaissance sorties. In addition to nearly 2,000 bombs of various weights and more than 4,000 S-5 rockets, they are known to have expended four R-23, 15 R-24, and 40 R-60 air-to-air missiles, and two Kh-23 radio-command guided missiles. Angolan fighter-bombers flew another 2,933 combat sorties, of which 1,108 were ground attack missions: the balance included reconnaissance, and top cover.[36]

To what degree this effort contributed to the defence of Cuito Cuanavale remains a topic of hot debate until the present. Actually, only two facts are undisputed: one is that the capture of the town and the local air base was not a priority for the SADF. Rather an option if operations in the area further south and east developed favourably. The actual South African objective was to weaken FAPLA to the degree where it could not mount an offensive against UNITA for the rest of 1988, then keep its garrison under pressure to prevent a renewed attack on Mavinga. This is confirmed not only by researchers working with official South African documentation, but even by surviving top leaders of UNITA.[37] Another is that without the Cuban command and control, and without Cuban air support, FAPLA would probably have lost Cuito Cuanavale.

Over the last 30 years, hundreds of books and thousands of articles about the Battle of Cuito Cuanavale have been published, usually describing it in terms of the 'biggest conventional clash that took place in Africa since the end of the Second World War' and the 'last battle of the Cold War'. Both are factually wrong. Not only in that around the same time corps-sized formations were clashing in Eritrea and the state of Tigray in Ethiopia, but much more 'Cold War-related' fighting was to continue raging through northern Chad and southern Libya for months longer, culminating in the Battle of Ma'arten as-Sahra on 5 September 1988.[38] Finally, the stand-off between Cuban and South African forces in Angola went on for months longer, and almost resulted in a massive mechanised battle in Cunene Province in the south-west, and furthermore, the war in Angola went on beyond the eventual withdrawal of Cuban and South African forces in 1989–1991, and so did the US-Soviet confrontation over this country.

5

Operation Antonio Maceo

Feeling safe about the situation in Cuito Cuanavale, on 9 March 1988 Fidel Castro ordered the ATS – now reorganised as the 50th Division and commanded by General de Division Enrique Acevedo – to initiate a redeployment southward from Namibe, in the Cunene Province of south-western Angola. The enterprise in question was conducted on the basis of plans developed in January 1988, and included the option of an assault on the SADF near the border, and an advance deep into South West Africa. As in the case of the situation in the 6th Military Region, FAPLA, in the east Cuban officers were in control of all the involved forces, regardless of whether Cuban FAR, FAPLA or PLAN. Thus began Operation Antonio Maceo.[1]

Deliberate Advance

Initially during Operation Antonio Maceo, the 40th, 50th, 60th, and 80th Tank Brigades of the 50th Division conducted a deliberate advanced along two axes on Xangongo, before establishing positions within triangle between Xangongo, Cahama, and Mucope. This was anything but a sudden dash: instead, the Cubans progressed slowly, with their tactical groups – none stronger than about 1,000 men – moving in widely separate formations, by night only. Each movement was tightly protected by one of eight SA-6 SAM sites that travelled with them, and usually ended in the construction of a well-fortified encampment. Always cautious about possible air strikes by the SAAF, the Cubans bolstered their air defences: by mid-March 1988, their 80th Tank Brigade – and the accompanying 2nd BrIM – were protected by no fewer than five SA-6 SAM sites, of which three were Angolan and two Cuban. Their work was coordinated by Cuban radio-technical regiment, equipped with – amongst other items – a modified Soviet-made radar, the antenna of which was installed on a 30-metre-tall mast, to improve its detection of aircraft flying at very low altitude.[2] Castro explained this deployment as follows:

> We must always take precautions as though the enemy will attack. We cannot assume that the South Africans will withdraw without fighting…. We are now entering a phase in which we must avoid even the smallest mistake. We must evaluate as carefully and dispassionately as possible the enemy's resources and likely reactions. We have time, we don't need to rush things.[3]

The actual reason for such precautions was that the Cubans were extremely wary about the possibility of the SAAF targeting their units with nuclear weapons. This was also the primary reason for significant separation between individual tactical groups of the ATS during this operation: it was calculated to guarantee that if a single unit was obliterated by a nuclear weapon, nothing similar would happen to the neighbouring asset. Once satisfied with their initial achievements, and feeling well-enough protected against air strikes, the Cuban engineers then rebuilt the destroyed bridge across the Cunene River, between Humbe and Xangongo, and three FAPLA units – the 2nd BrIM, 19th BrI, and the 35th BrIL – were brought in to garrison Cahama, Xangongo, and Tchamutete, respectively. Once everybody was in place, on 9 March 1988, the Cubans initiated their general advance, by sending their 40th Tank Brigade from Lubango to Tchibemba: by the end of the month, this unit then moved to Humbe, followed by the 80th Tank Brigade that moved into the Cahama area, the 50th Tank Brigade that advanced to Mucope, and the 50th Tank Brigade that reached the Tchamutete area. Their movement was shadowed by the mobile air defence units, which redeployed to the area between Humbe and Cahama, to join the three Angolan-operated SA-6 units already there.[4]

Two Unclear Engagements

As far as the Cubans were concerned, the sole South African reaction was the appearance of three SAAF aircraft in the Cahama area during the evening of 18 March 1988. However, these did not

Tanks of a Cuban brigade on their march through the southern Cunene Province. (Albert Grandolini Collection)

engage any of the Cuban ground units, nor even entered the zone protected by the Cuban air defence. Then, at 07.40hrs on 26 March, one of the SA-6 SAM sites reported having shot down a South African aircraft underway in the same area. Lieutenant Colonel Enrique Messana Valdés recalled:

> There was a target: azimuth 150 degrees, distance 160 kilometres, and approaching! The signal keeps getting closer until the radar showed two aircraft. My group received the order to destroy them. After a few minutes, 1st Lieutenant Scull reported tracking them at azimuth 100 degrees, 66 kilometres away, at an altitude of 4,000m and speed of 650km/h. When targets were 26km from Cahama, they started moving away, but then made another turn and came closer again, to the range of 27km. I warned all my firing units that this is a decoy manoeuvre, trying to provoke us to open fire and thus reveal our positions – so we can be attacked by other aircraft flying at a very low altitude. Almost immediately, I heard Scull calling again: "There is a new target, azimuth 180, distance 20 [kilometres], height 800 metres, speed 750. It is approaching! I'm firing!"
>
> Scull's unit was positioned in the outskirts of Cahama. The dark sky of the night was suddenly illuminated by the shining light of the rocket motor, never seen by the locals before, accompanied by a deafening roar. The missile ascended in search for its prey: a few seconds later, an explosion was visible in the distance, indicating it found it. On the radio, I heard Scull calling, "White destroyed! White destroyed!" Immediately after, our radars tracked the two other aircraft disengaging towards the south.[5]

As far as is known, the SAAF had no presence in this area and suffered no losses on that day: indeed, as the subsequent developments were to show, and although several South African aircraft were monitored while passing south of the Cuban deployment, by this point in time, Pretoria was entirely unaware of the deployment of FAR troops south of Namibe. Thus, through early April 1988, the Cuban brigades were left free to send advance parties all the way to the border with South West Africa. Heavier elements followed: on 29 April, a battalion of the 2nd BrIM supported by a battalion of the 80th Tank Brigade moved from Cahama to Chipa. Once again, the move was shadowed by air defence units: on 14 April 1988, one SA-6 SAM brigade crossed the Cunene River and took a position in Xangongo, where it was reinforced by a radar company a week later. The latter unit was hardly in its new position when, at 06.30hrs on 27 April, the headquarters of the 40th Tank Brigade radioed a warning about the appearance of enemy aircraft in the Mogua area, east of Xangongo. Immediately, all the Cuban air defence units were put on alert and, a few minutes later, one of the Angolan SA-6 SAM sites deployed near Xangongo opened fire – with unknown results. No air strike had taken place, though, and at 08.30hrs the air raid alert was cancelled. The FAR deployment into southern Cunene thus went on and by mid-May 1988 around 10,000 Cuban, 7,000 FAPLA, and 2,000 PLAN troops were camping along a wide swath of territory only 30km north of the border with South West Africa.[6]

Forward Air Bases

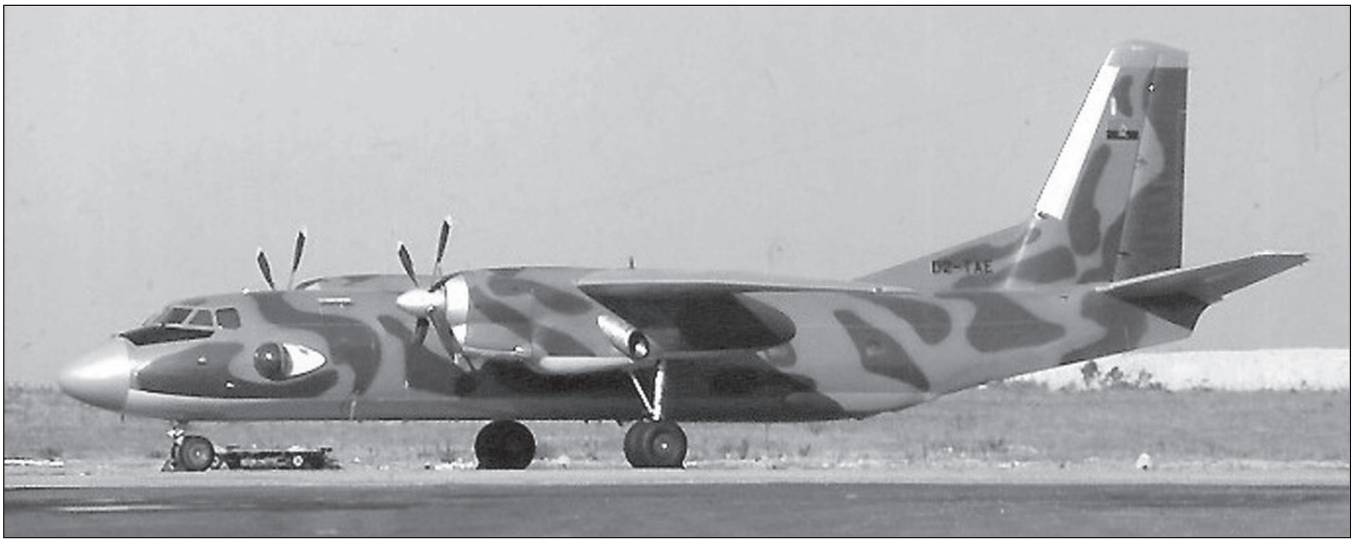
The South African air power remained the overbearing concern in Havana. Having concluded that both Lubango and Menongue air bases were too far away, the Cubans took care to complete the work on the construction of Cahama Air Base, initiated in 1987, and construct a new forward base in Xangongo. Emphasised by Castro, the work in Cahama was completed in a matter of days by a 250-strong FAR engineer unit, supported by a large number of Angolan troops, as described by Vladimir Anatoliyevich Korolkov, a Soviet advisor attached to the 2nd BrIM, FAPLA:

Defection that never was

In April 1988, rumours appeared in South Africa, followed by the Western press, about the FAPA/DAA scrambling two MiG-23MLs to intercept an Angolan An-26 transport carrying the 'defecting Cuban Major General Cruz Borsao, a crew of three, and 25 other officers of the FAR to South West Africa' on 27 April 1988. Other South African sources indicated the transport was actually shot down by SA-7 MANPADS in the Tchamutete area.

Actually, the aircraft in question (serial T-237) was Angolan but crewed by Cubans, and Major General Borsao was on board, and killed, together with 28 other occupants – as announced by Fidel Castro on 28 April 1988. However, the incident in question occurred under entirely different circumstances than usually reported, and neither Borsao nor anybody else on board was attempting to defect.

The An-26 carrying him was underway to Tchamutete, and already in the landing pattern, when detected by the radar of the Cuban SA-13 SAM site protecting the local runway. Its approach was then tracked by a non-commissioned officer who made a tragic mistake: thinking the system was in 'Training' mode, he heard the sound confirming a lock-on, and pushed the 'Launch' button. Much to his consternation, the system opened fire, launching a single missile: actually, the system was in the 'Combat Work' mode. The Strela scored a hit on one of the An-26's engines, causing it to crash immediately, killing everybody aboard. The non-commissioned officer was court-martialled and sentenced to 15 years of jail for un-premeditated homicide.[7]



As of 1988, both Angolan and Cuban-operated An-26s of the FAPA/DAA wore military serial numbers at the base of their fin. The one shot down in a tragic incident on 28 April 1988 was T-237. A few years later the entire fleet began receiving civilian registrations with prefix D2, as seen here. (Albert Grandolini collection)

> A good number of Cuban troops were brought in, and not only troops but also construction brigades to build an airfield in Cahama. This was done to launch air strikes with MiG-23ML fighter-bombers at targets in Namibia. At first, they prepared an area three kilometres across, levelled it and covered it with concrete. The construction equipment, which worked day and night, had all been brought over from Cuba: small-size road graders and bulldozers like the KATO or Caterpillar.[8]

Asphalting of the two runways at Cahama AB – one 2,500 metres long, the other 2,700, and both 30 metres wide – began on 25 May 1988, and on 3 June several MiG-23MLs of the DAA/FAR contingent were brought in to carry out test-landings and take-offs, as recalled by Major Jorge Rodriguet Marguetti, a Cuban pilot in charge of the team involved:

> First we made several passes at a very low altitude in a two-seater MiG-23 to recognize the track and consume surplus fuel. Then we made several passes in which we landed, continued rolling at high speed and took off again without stopping. We landed with minimum fuel. The builders were trained and there was even a microphone installed. We were aware of the great significance of that fact for the support of the future actions of our troops. It was an exciting moment. A small act was performed and we took off back to Lubango.[9]

The forward operating base in Xangongo became operational a few weeks later and, even before the two facilities were completed, both received heavy protection. Cahama AB alone was defended by one SA-3, one SA-6, and one SA-13 SAM site, two batteries of ZSU-23-4 Shilka SPAAGs, a battery of ZU-23 towed guns, and several teams equipped with SA-7 and SA-14 MANPADs. In turn, this concentration was supported by two radars modified for improved low-altitude detection and another SA-6 SAM site, forward deployed on the outskirts of Xangongo (the place with the highest elevation in this part of Angola). Together with MiG-23MLs forward deployed at Cahama, they guaranteed that the Cubans, FAPLA, and PLAN would henceforth operate in south-western Angola while in possession of aerial supremacy, but also become capable of striking bases inside South West Africa. This is also why all the further advances of the ground troops paused until new air bases and their air defences were ready.[10]

A still from a video showing a Cuban MiG-23ML rolling down the newly completed runway of Cahama AB on 3 June 1988. (via Luis Dominguez)

Two stills from a video showing the MiG-23ML serial numbers C401 and C408, both operated by Cubans, on the apron of Cahama AB. A flight of four was forward deployed at this base starting from 5 June 1988. (via Luis Dominguez)

Another Paradigm

Benefiting from control of the airspace over southern Cunene Province was not the only ace the Cubans had up their sleeve: at least as important was the fact that the local bush was less dense and there were many more open areas in Cunene than in Cuito Cubango. For ground troops, this meant less cover from enemy aircraft. Another factor in favour of the Cubans was the role played by SWAPO and its armed wing, PLAN. The South Africans and UNITA never managed to gain much popularity in this province: the local population was either neutral or sympathetic to Luanda – and, frequently, friendly to the insurgents from South West Africa. Indeed, PLAN fighters – with whom the Cubans eventually developed an almost symbiotic relationship – were not only familiar with the local terrain, but also renowned for their discipline, good training, and mastery or guerrilla tactics. Igor Zhdarkin commented:

> As for the Cubans, they fought very competently in Angola. In practice, they mistrusted what the Angolan intelligence service said, organised their own special units using mostly Cuban black soldiers to patrol the jungles and savannahs and gather information, and with their deep reconnaissance units collected data from the remote interior and from the rear of the enemy. Since the Cubans didn't trust the Angolans and did all their business on their own, the only organisation that the Cubans had much contact with was SWAPO. The Cubans maintained close relations with SWAPO and conducted joint operations.
>
> Our Soviet advisers were also with SWAPO and regarded them very highly for their training and their efforts to learn the skills of warfare, their readiness to execute instructions and their ability to fulfil orders. For example, SWAPO militants had to blow up a bridge on Namibian territory. They went and blew up the bridge. On the way back, the group found an ammunition dump. They blew it up, took possession of a Racal portable radio receiver and brought back other apparatus that they could use later on. They did all this without having to be told by anyone, showing great initiative.[11]

Eventually, the allies went as far as to establish three mixed reconnaissance squadrons, including about 200 Cubans and 250 Namibian officers and other ranks each. Known as Tiger, Lion, and Zebra, these were deployed in Xangongo, Cahama, and Mupa, respectively. Additionally, the PLAN had another reconnaissance battalion of 300 experienced insurgents in Tchipa. All four units were conducting constant reconnaissance patrols along the border with South West Africa. This resulted in such high confidence within the leadership of the PLAN, that the Cuban enterprise was perceived as decisive for the future of their country. Martin Shall, the insurgent chief of operations, observed:

> Come hell or high water, it was time to mobilise our former SWAPO, FAPLA and Cubans, integrated, one command, a central system. Go out there and sort them out now and forever. We started to build forward airbases at Xangongo, barely 60 kilometres away from the border with Namibia, at Cahama, bring in missiles as close as Calueque, then deploy as close to the border as possible, bringing in brigades. SWAPO mobilised over 10 000 men for this effort. Numerous FAPLA and Cubans came too.

For comparison, a member of the 32nd Battalion operating in the area of June 1988 concluded:

> The population was so hostile that when we passed too near their kraals and the donkeys brayed the villagers would beat on drums and cooking pots to give away our position to enemy patrols.[12]

All of this meant that if the SADF ever decided to operate in this part of Angola, it would have to do so without an as strong ally as in the south-east, and while facing an enemy supplied with superior intelligence.

First Clashes in Cunene

For most of early 1988, the South Africans were entirely unaware of the Cuban advance in the direction of the border. Their counterinsurgency units deployed in north-western South West Africa continued to operate as usual, occasionally carrying out patrols across the border in the search for PLAN insurgents in the Cunene Province. Obviously, as the joint FAR-PLAN reconnaissance

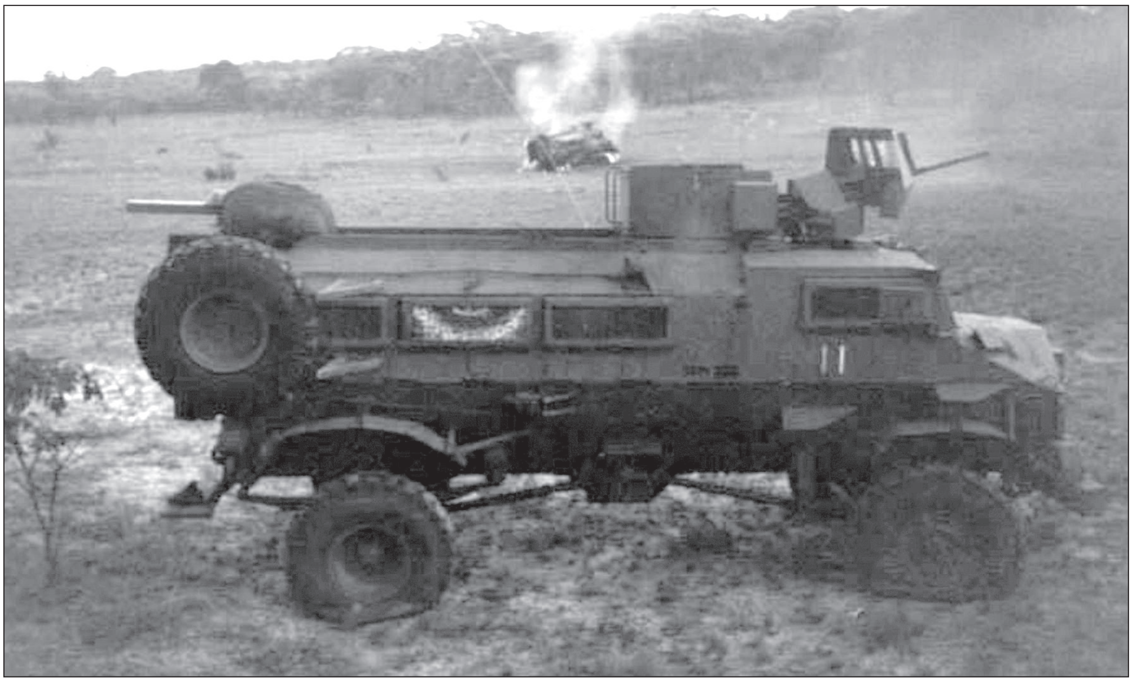
Firewood

One of the reasons for SWAPO confidence in spring 1988 might have been that only a few months before PLAN had taken on the SADF frontally, and emerged victorious, while it usually suffered devastating losses during such engagements (or at best, managed to withdraw to fight another day). Indeed, in mid-October 1987, and pursuant to the overall South African strategy of involvement in Angola because of the SWAPO activity there, the SADF prepared for one of its usual forays with the aim of destroying Northern Front Headquarters of the insurgency, located in Limbundu, north of Tchamutete (formerly Vila de Pavia) – nominally within easy reach of its ground forces. Codenamed Firewood, the operation included a light infantry force drawn from the 5th Reconnaissance Regiment, one company of the 1st Parachute Regiment, a MAOT team and a platoon of Ratel-81s – with a total of 156 vehicles, the bulk of which were Casspir and Buffel MRAPs – commanded by Colonel James Hills. The plan for this operation can be characterised as 'classic': the reconnaissance and paratroopers were to launch an attack from the west, while the 101st Battalion was to seal escape routes towards the north, east, and south.

However, reconnaissance parties of the PLAN detected the South African units well before these reached their starting positions. Instead of ordering an evacuation and dispersion, the Regional Commander of the Northern Front, Nghilifavali Thomas Hamunjela, and his deputy, Ben Shilongo, decided to confront the enemy. Their insurgents positioned a number of minefields along expected enemy axes of advance and constructed a number of observation posts in a radius of seven kilometres around the camp, so to avoid any kind of surprise. The majority of troops were dispersed into platoon-sized groups, lavishly armed with AKM assault rifles, RPK and PKM machine guns, RPGs, B-10 recoilless rifles, 82mm mortars, and SA-7bs. Finally, the garrison was reinforced by another PLAN unit, commanded by Malakia Nakanduungile.

The attack was initiated as planned, at 10.00hrs on 31 October 1987, when a total of eight Mirage F.1AZs and two Atlas Impala Mk. II light strikers – with the top cover of four additional Mirages – bombed the camp. However, delayed by the vegetation, mechanical breakdowns, and navigational errors, ground units where still approaching their objective: instead of launching their assault, they spent the entire morning and the noon fighting a series of close-quarter firefights with insurgents, while the 101st Battalion was forced to try preventing PLAN reinforcements from reaching the scene. Eventually, as soon as the SAAF helicopters evacuated all of his casualties, Hills was forced to call off the attack and withdraw.

Overall, at least 12 SADF troops were killed and 47 wounded, two Casspirs were destroyed and two were abandoned and captured by the PLAN. Certainly enough, the South Africans assessed the insurgent losses as 'at least 150', however, SWAPO acknowledged 8 killed and 30 wounded.[13] Operation Firewood thus went down in history as one of the biggest South African failures throughout the 'Border War' of the 1980s.



Spoiled by the vegetation, mechanical breakdowns, and navigational errors, Operation Firewood ended in a veritable disaster and unusually heavy losses for the SADF. These two Casspir MRAPs were amongst four such vehicles destroyed or captured by PLAN. (SWAPO release) units intensified their patrolling activity, they had to run into each other, sooner or later.

On 13 April 1988, a full battalion of Cuban special forces (*trupas especiales*), reinforced by elements of the PLAN, arrived in Chipa. A day later, it began sending patrols in the direction of Caleque and Chitado. On 17 April, one of its units had a brief encounter with a South African detachment and a Cuban operator was wounded in the resulting firefight. The FAR-PLAN unit withdrew back to Tchipa, but patrolling activity was subsequently reinforced. On 23 April 1988, around 20 kilometres south of this town, another Cuban patrol was informed that a platoon from the 102nd Battalion of the South West African Territorial Force (SWATF) was tracking a group of withdrawing PLAN insurgents. In a quickly established ambush, three enemy troops were killed by the *trupas especiales*, which lost one killed and one wounded. Primarily, the Cubans managed to force the enemy to withdraw while leaving behind the bodies of their fallen. In reaction to this encounter, the 50th Division decided to reinforce Tchipa and on 29 April 1988 sent the 80th Tank Brigade there, reinforced by a battalion of the 2nd BrIM.

Meanwhile, another clash took place only 30km south of Xangongo. On 16 April, the Cubans dispatched a mixed reconnaissance squadron reinforced by a company of *trupas especiales* to ambush a SWATF detachment. The trap was set up outside an abandoned catholic mission in Chipeque, two days later, and bagged two platoons of the 201st Battalion SWATF (the former 31st Bushman Battalion), mounted on Buffel MRAPs. An RPG-7 shot opened the engagement, badly damaging the leading vehicle and wounding almost everyone aboard. As other Buffels rushed forward to rescue their comrades and then force their way through the ambush site, a fierce firefight ensued that ended with the SWATF unit fleeing the scene with Cuban special forces in hot pursuit, trying to prevent SAAF helicopters from approaching the combat zone and helping with the evacuation of casualties. Eventually, the bushmen managed to get away after hastily burying the bodies of two of their killed – including a corporal from South Africa. The Cubans and allies suffered no losses whatsoever.

Still not realising what kind of threat they were facing, the South Africans drew the wrong conclusion that it was the PLAN that was responsible for all this action. Knowing that the insurgents always operated in small groups, they continued operating as usual. However, the ambush they set up in revenge, on 28 April 1988, about 30km outside Cuvelai, resulted in the SWATF killing two Cubans and five Namibians. This prompted General Acevedo and his staff to the conclusion that running foot patrols 70km from their base was inadequate. Therefore, they initiated a much more powerful series of patrols by reconnaissance company of the 80th Tank Brigade, equipped with BRDM-2 armoured scout cars and BMP-1 IFVs.[14]

The Donguena Ambush

On 30 April 1988, the FAR received intelligence about the enemy activity in the Donguena area, about 50km south-east of Tchipa. Two days earlier a FAPLA patrol was ambushed by the SWATF and lost two killed and 11 wounded. Moreover, on the same day four Cuban troops were also killed when their truck carrying food supplies was ambushed. Correspondingly, the 80th Tank Brigade was ordered to deploy a detachment strong enough to take on any enemy force active in this area. For this unit, on 3 May 1988, the brigade deployed a combined company of *trupas especiales* and PLAN insurgents, accompanied by several interpreters from FAPLA – a total of 96 troops, including 81 Cubans – armed with 18 RPG-7 launchers (double the normal allocation for a unit of this size), two AGS-17 automatic grenade launchers, and six PKM machine guns. Moreover, this was followed by a detachment of 10 T-55 MBTs, five BMP-1 IFVs and two ZSU-23-4 Shilka SPAAGs, in turn shadowed by a half-battery of three BM-21s, and a platoon of M-46 guns. The first of the *trupas especiales* reached their destination a day later, and began preparing a well laid-out U-shaped ambush position, surrounding one of the rare tracks in the area: the track was mined, while each side of the ambush position was occupied by one entrenched platoon. The entire effort paid off before long, as around 14.00hrs of the same day, an entire company of the 101st Battalion – mounted on about a dozen Casspir MRAPs and two trucks – drove straight into the centre of the ambush. As recalled by Bernardo Heredia Pérez, one of the Cuban RPG-7 gunners:

> We detected the enemy approaching; they were more than a hundred men, with twelve armoured cars and two trucks. We were less, but with the advantage of surprise and well disseminated rocket launchers. They sang, there was even music, and some were sitting on the roof of their vehicles. Of course, at that time they were still in control of these areas. […] When they were about 25 metres away we opened fire. Their vehicles scattered, but the closest one was destroyed by a rocket; another one managed to get out to our rear and caused us three casualties. Two more Casspirs were hit. The enemy reorganized and attacked again. In front of my position a Casspir appeared, firing everywhere; I fired again and hit it on the machine gun. The armoured vehicle turned and accelerated. I loaded another rocket. Another vehicle was approaching, I fired but did not hit it.[15]

The fighting went on until dusk, when the surviving SWATF withdrew: what became known as the Ambush of Donguena, was quite a Cuban success: although losing five killed and four wounded, they killed six and captured one of the troops of the 101st Battalion, and destroyed three Casspirs and captured one intact.[16]

Scattered Buffalos

Alerted by the ferocity of the ambush at Donguena, the SADF redeployed the 32nd Battalion to Ruacaná and on 9 May 1988 ordered it to dispatch two teams with the aim of obtaining better intelligence about the volume of enemy forces in the Tchipa area. As soon as the two units returned, it became obvious that the place was occupied by at least a battalion of the PLAN, reinforced by the Cubans. Therefore, the South Africans abandoned their idea of deploying the 32nd Battalion to assault and seize the town: instead, they decided to use it to observe the enemy and harass it, while the task of the actual attack was to be assigned to the 61st Mechanised Battalion, which was mobilised and sent in that direction. Certainly, caution was not out of place: by that time the 80th Tank Brigade had an entire tactical group in Tchipa, protected by an SA-6 SAM site.

On 21 May 1988, E Company of the 32nd Battalion set out to attack several enemy outposts about 15km south of Tchipa. A day later, it ambushed a small foot patrol, killing two Cubans and wounding several insurgents. This, however, caused 'all hell to break lose': immediately after, a mechanised detachment of Cuban troops – entirely unknown to the South Africans – dashed out of another outpost, just 1,000 metres from the ambush site, and they came under the fire of mortars and BM-21s. Shocked, the members of E Company were left with little choice but to scatter and run for their lives, leaving their heavy equipment behind. Almost miraculously, the South Africans suffered no losses, but the company of 90 troops took days to return to Ruacaná, in small, well-dispersed groups.[17]

SAM Action

Of course, clashes in the area south of Tchipa kept the Angolan and Cuban air defence units on their toes, as a fierce reaction by the SAAF was expected at any time. The resulting tension is the most likely reason for a series of engagements reported by Cuban sources during mid and late May 1988. At 07.00hrs on the morning of 14 May 1988, three South African aircraft were detected while approaching the Tchipa area at an altitude of 6,000 metres. The nearest SAM site was operated by Angolans, but the day before had suffered a malfunction of its 1S91 SURN fire-control radar (ASCC/NATO-codename 'Straight Flush'), and for the time being could not engage any aircraft flying above an altitude of 2,000 metres. Therefore, targeting data was forwarded to a battery of radar-controlled 57mm S-60 guns of the FAPA/DAA, and they opened fire. The South Africans left the area apparently without ever noticing their enemy. To bolster the Angolans, on 20 May, a Cuban SA-6 SAM site was redeployed from Humbe into a position three kilometres southwest of Tchipa. This was followed by another Angolan SA-6 unit: at sunset of 26 May, the latter reported engaging a 'suspected SAAF helicopter' with at least one missile: once again, the results remained inconclusive.[18]

A 5P73 quadruple launcher at an Angolan or Cuban SA-3 SAM site, with two V.601 missiles in firing position. (Tom Cooper collection)

At 06.00hrs on the morning of 27 May 1988, radars of Angolan and Cuban SAM sites in the Tchipa area detected three aircraft approaching the border from the south, and all units were put on alert. At 07.10hrs they detected another three aircraft approaching from the south and crossing the border. Eventually, the sole SA-2 SAM site deployed in Cunene Province – the 27th Missile Group of the 60th Air Defence Brigade, commanded by 1st Lieutenant Bazunga Nzinga – fired two missiles at the lead enemy aircraft and, despite its hard evasion manoeuvres, reported two hits. A similar action occurred on the morning of 28 May 1988, when another presumed aircraft approached the Tchipa area from south-east, and a 'South African Mirage III' was claimed as shot down by the 27th Missile Group. Eventually, the DAA/FAR contingent forward deployed at Cahama AB sent a helicopter to investigate, but after several days of search its crew found no wreckage or other traces of enemy presence.[19]

The Fog of Escalation

It was only in the light of experiences from engagements in the Tchipa area, that the leadership of the SADF began realising that 'something big' was brewing in Cunene Province. Certainly enough, they still lacked precise intelligence on enemy dispositions, strengths and capabilities, and tended to underestimate. Thus, the South Africans were slow in concentrating their 61st Mechanised Battalion – reinforced by the bulk of the 32nd and 101st Battalions, minor detachments from the 51st, 202nd, and 701st Battalions, a battery each of G-2s and G-5s, Valkiri MRLS and 120mm mortars, and a squadron of Olifant Mk.1 MBTs – in the Ruacaná area, to create Task Force Zulu. Commanded by Colonel Mucho Delport, this unit was built up only in early June 1988. However, further to the rear, the SADF activated its 10th Division. The first division-sized SADF unit created since the Second World War, this formation primarily included reservist units – like the 81st Armoured Brigade – which first had to undergo retraining. The aim of the entire enterprise – originally codenamed Operation Hilti but renamed to Prone – was comparable to that of Operation Protea, conducted in 1981: the SADF was first to expel the enemy from the Tchamutete area – Operation Faction – and then secure a takeover by UNITA – Operation Florentine.[20]

For their part, the Cubans were in the process of initiating the next phase of their advance to the border and reinforcing their 50th Division. On 11 June, the 30th Tank Brigade left Menongue for a march to Cahama, while the 60th Tank Brigade – reinforced by the 35th BrIL of FAPLA – left Cuvelai in the direction of Xangongo. With this, by 16 June 1988, General Acevedo had five armoured brigades of the FAR, three infantry brigades of FAPLA, several battalions of the PLAN, nine SA-3 and nine SA-6 SAM sites, and a single SA-2 SAM site deployed within striking distance of the border of South West Africa.

A pair of Zil trucks of the FAPA/DAA, each carrying a pair of V.601 reloads for the SA-3 SAM system seen during a military parade in Luanda during the late 1980s. (Albert Grandolini collection)

In other words: both sides were in the course of preparing for a massive, mechanised showdown.[21]

A Navigational Mistake

Meanwhile, sporadic clashes in the Tchipa area went on. By 6 June, the DAA/FAR had one of its low-altitude radars deployed in Cahama and another in Xangongo and connected to the RA/DAAS. Always nervous about possible SAAF air strikes – or even worse: a nuclear strike – the Cuban crews were kept on a constant alert by now. Around 11.00hrs, the unit deployed in Xangongo reported an aircraft underway at an altitude of 9,000 metres and a speed of 850km/h, passing narrowly outside the range of the SA-6 SAM site deployed in Cahama. Eventually, the Cubans realised this was a Boeing 747 of the South African Airlines.[22]

By this point in time, the Angolan-Cuban advance towards the border had encountered no resistance from the SADF: at most, it clashed with patrols searching for PLAN insurgents. This changed on 13 June 1988, when the artillery attached to the 61st Mechanised Battalion subjected the Angolan and Cuban positions in the Ondjiva area to a barrage of 400 shells. The headquarters of the 50th Division, FAR, reacted by redeploying the 60th Tank Brigade and the 35th BrIL of the FAPLA to the Xangongo area. A day later, this march was tracked by two aircraft of the SAAF, and a pair of MiG-23MLs was scrambled to intercept but, as soon as they approached, the South Africans withdrew.[23]

Colonel Ibarra (centre), probable commander of the MiG-23ML detachment manned by the DAA/FAR contingent, talking with a group of his pilots, in front of the MiG-23ML serial number C453. (via Luis Dominguez)

As soon as Cahama AB was declared operational – and considered well-enough protected by Cuban-controlled SAMs and anti-aircraft artillery – the DAA/FAR contingent in Angola rushed to deploy several MiG-23ML interceptors there. They flew a number of patrols along the border with South West Africa – and, sometimes, south of it too. This still from a video shows the cockpit section of the example with serial number C478. As far as is known, the jet belonged to the batch of 10 originally 'embargoed' by Moscow because of the Cuban advance into southern Cunene, but then delivered to Angola later in 1988. (Mark Lepko Collection)

Immediately after, the DAA/FAR contingent at Cahama scrambled another pair of MiGs on a visual reconnaissance of the border. This mission almost had far-reaching consequences, as Major Jorge Rodriguez Marquetti, who flew as the Number 2, recalled:

> We left for a flight along the border. A colonel was a leader and I was a Number Two. We took off from Cahama in two MiG-23. We flew to Ruacaná, turned left and followed the border. There was a road constructed by South Africans on the Namibian side, along the dividing line, serving as a perfect reference point. There were scattered clouds around us, and then the Colonel turned south-east – over the border, into Namibia. As they say, "where I can send a captain, I do not send a soldier": thus, I've followed him without reluctance, thinking this might be some secret mission I was not informed about…. I was tense, monitoring instruments and scanning the skies all around our aircraft, just in case they would try to intercept us, or launch missiles at us. Then I saw the Ondangwa air base, 50 kilometres away. From our position, it appeared within the reach of our hands. Suddenly, my flight leader made a sharp turn to the left, and we returned to Cahama.
>
> Once on the ground, I asked the Colonel about the mission we've performed in Namibia. He replied: '…I got confused by the clouds and lost directions. Followed the Panafricana until I saw Ondangwa. I was surprised and I thought, what the hell is Cahama base doing here? Then I realised it was not Cahama and that we are violating the airspace of Namibia, so I run away!...[24]

The Thchipa Hotspot

On 20 June, the South Africans shelled a FAR position 16km south of the town, but this time drew Cuban counterbattery fire and then dispatched a reconnaissance company of the 80th Tank Battalion to search for the enemy guns: the SADF quickly withdrew, but continued harassing the column as it approached. When they failed to hit back with their own artillery, the Cubans finally called in an air strike from Cahama AB, the results of which remain unknown.

On 23 June, the headquarters of the 60th Tank Brigade in Xangongo received intelligence about the presence of South African armoured vehicles near Cuamato and promptly deployed a mechanised force supported by BM-21s to counter. At 04.00hrs of the following morning, the Cubans reached the area in question and subjected it to several volleys of BM-21s, before sending their tanks to attack. As it turned out, their target was a part of the 201st Battalion of the SWATF, which withdrew in a hurry, leaving two Buffels behind (one of which was captured by the Cubans). Early on 24 June, the 27th Missile Group of the 60th Air Defence Brigade fired another two missiles at 'approaching South African Mirage IIIs', and claimed one as shot down – although the SAAF is not known to have suffered any kind of losses.[25]

Certainly enough, it is possible – and even likely – that the South Africans conducted aerial reconnaissance of the area, whether with their Dassault Mirage IIIRZ or English Electric Canberra aircraft. The reason is that by 25 June 1988 – when a combined FAR-PLAN patrol briefly clashed with a SWATF patrol in the area south of Tchipa – the SADF was ready to initiate Operation Excite: a downscaled version of Hilti/Prone. First, the SAAF attempted to ambush the enemy air power. Early on 26 June, a single Impala Mk.II approached Tchipa in full view of the DAA/FAR radars and SAM sites deployed there

A G-5 gun seen during testing in the mid-1980s. The advanced design of this weapon and its shells (both based on developments by the Canadian gun designer Gerald Bull) proved vastly superior to anything in Angolan or Cuban service. (Photo by Al J Venter)

before suddenly descending to low altitude and returning back to South West Africa. At the same time, six helium-filled balloons were released, to simulate an approaching attack formation. The plot worked perfectly, prompting the two Cuban-operated SA-6 SAM sites to power up their systems and fire a total of six missiles – at targets their operators identified as 'helicopters'. Obviously, this reaction revealed their positions to a forward artillery observers of the SADF deployed near Tchipa, who forwarded the targeting information to the artillery. As a consequence, G-5s subjected the Cuban SAM sites to artillery barrages lasting for hours, which they assessed as having 'inflicted heavy losses to the enemy'. However, the Cubans were excellently prepared. Not only did all of their SAM sites redeploy into alternative positions right after their firing action, but even the ground units securing them – including the headquarters of Tactical Group 82, a battery of 57mm S-60 automatic guns, and two companies of MININT special troops protecting them – moved out. Correspondingly, the hurricane of South African shells hit empty positions: even though all the Cuban and Angolan positions in southern Cunene were well-fortified by this time and designed to sustain precisely such a barrage. Correspondingly, the FAR suffered no damage or casualties at all, and its air defence system remained perfectly intact. Moreover, unlike earlier cases when the Cubans would rush into a counterattack, Tactical Group 82 remained put, leaving the SADF with little option but to withdraw back to the border.

The action went on with G-5 switching their fire to the town of Tchipa and suspected Cuban positions around it – although their exact strength and dispositions remained unclear: in fact, as of 25 June, the 50th Division had at its disposal five tank brigades, three Angolan light infantry brigades, several thousands of PLAN insurgents – over 50,000 troops in total, with 600 tanks and hundreds of other armoured vehicles, artillery and BM-21s – one SA-2 SAM site, nine SA-3 SAM sites, nine SA-6 SAM sites, several SA-13 SAM sites, numerous ZSU-23-4 batteries, and hundreds of SA-7 and SA-14s and anti-aircraft guns.[26]

The Final Clash

Still unaware of the extent of enemy deployment, and entirely clueless about the Cuban and Angolan capabilities and intentions, the South Africans planned to draw out the enemy and destroy it in a battle of manoeuvre before seizing Tchipa. Therefore, their G-5s continued a barrage throughout the afternoon, shelling the vacated positions of one SA-3 and two SA-6 SAM sites, the empty headquarters of one of the Cuban tactical groups, an empty battery of S-60 guns, and sites formerly occupied by *trupas especiales* of the MININT: all had been redeployed the night before. Nevertheless, the South African barrage eventually triggered – equally ineffective – Cuban counterbattery fire. South African helicopters were active too: the Cubans assessed them as carrying forward artillery observers and thus granted their SAM sites permission to open fire. Six missiles were fired during the afternoon, but none scored a hit. Finally, at sunset, Combat Group Charlie – consisting of the 61st Mechanised Battalion, with elements from the 32nd Battalion, organised into three teams and commanded by Mike Muller – moved into Angola through Caleque.[27]

At dawn on 26 June 1988, Muller dispatched a team of his combat group on a reconnaissance in force. Led by Major Hannes Nortman, this included a mechanised company with 12 Ratel-20s, eight Ratel-90s, eight Ratel-81s, and four ZT-3s of the 32nd Battalion. By coincidence, around the same time Tactical Group 82 deployed two reconnaissance patrols, each consisting of three BMP-1 IFVs and roughly 30 troops from the PLAN and *trupas especiales*. They were followed by a company of T-55s, ready to intervene if necessary. With the three forces having almost exactly the same task – reconnaissance of the area around 10–20km south of Tchipa – their collision was unavoidable.

After travelling for around 15km, early on 27 June 1988, one of the Cuban patrols stopped its vehicles, positioned them in an ambush in the bush, and sent its dismounted infantry forwards in a line. Only minutes later, the troops returned to report the sound of multiple heavy vehicles. The commander ordered them all into ambush positions too – just in time to see the leading Ratels of the South African combat team appearing over a low ridge in front of him. The Ratels drove straight into the ambush to receive a volley of RPG-rounds fired by BMP-1s and dismounted enemy infantry alike. Antonio Palenzuela Suáres was the gunner in one of the Cuban IFVs:

> We prepared for combat, counting on surprise. We let them get closer. The signal to open fire was a single burst from a machine gun but in excitement, somebody came forward and fired a single rocket-propelled grenade that hit the first enemy vehicle. Then we started the engine of our BMP, and the driver told me: "Hey, I'm going to catch those two Ratels. I'm going to go out and you hit them!" As we started moving, I saw a Ratel 70 metres away. I shot with our gun and hit it in the middle, but was so nervous, I fired seven more shots…then the commander ordered, "Aim to the left!" I loaded fast, fired, and fired the coaxial machine gun too. I continued firing against other [South African armoured vehicles]

> until projectile number 18 got struck in the gun. The driver told me to unlock it by the pipe and the ramrod. But, that could only be done from above, outside the vehicle – in the middle of that shootout? I did not think much about it and left my position to unlock the projectile. I do not know how they did not kill us, but by the time we've had an operational gun again, everything was over.[28]

Second Lieutenant Kruger Lotter of the SADF, confirmed that the well-concealed BMPs got the better of this engagement:

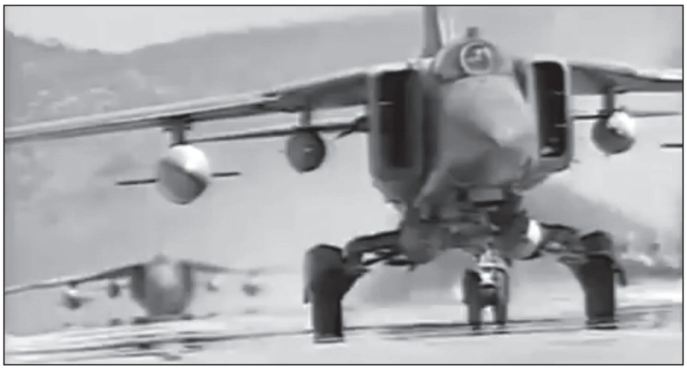
> We crossed a low ridge and moved slowly along the northern edge. At the edge there was good cover, but ahead was a big open patch some hundreds of metres long and wide. When we moved into this open area they started to bombard us with mortars, but nothing serious. We simply kept on moving as if nothing was happening. Shortly thereafter three Ratels from 61 Mech were shot out on our right-hand side. Even though the area was relatively open, there was high grass and some of the enemy RPG gunners fired their RPGs and then disappeared out of sight in the long grass while they reloaded. Many were shot. There were many Ratels with RPG projectiles stuck in the louvres at the back of the vehicle. They were too close for the RPG to arm itself and therefore had not exploded when the Ratel was hit. There were many infantry on the ground. They basically allowed us to enter the open terrain before they started to fire.…There was a fire belt action fired and some of the Ratel-20s went forward to recover the crew and one dead body from the Ratels… We were totally outnumbered and started to move back in bounds …. We broke contact and moved back for about two kilometres to the previous high ground. In the meantime our tanks made contact, but after a few minutes also broke contact and moved in our direction.[29]

Both the Cuban and South African commanders reacted by rushing their tanks to the front. This time, the Olifants proved superior: one damaged a T-55 with two long-range shots, before both sides disengaged. The curtain came down with the SADF artillery managing to discourage the 82nd Tactical Group from trying to outflank the South African combat group from both sides. The clash was over and both the Cubans and the South Africans started counting their ranks, while issuing rather extravagant claims about enemy losses. Eventually, it turned out that the SADF lost two destroyed Ratels and one soldier killed, the Cubans six killed, and the PLAN insurgents four killed. The damaged Cuban T-55 was subsequently repaired.[30]

Floggers unleashed[31]

The fighting between Tactical Group 82 and Nortman's force was still in full swing when Castro ordered the DAA/FAR contingent in Angola into action. Aiming to demonstrate to the South Africans that the Cubans were capable of striking SADF bases south of the border, he ordered the execution of Operation Orange: this was the codename for a set of contingency plans developed by the Cuban air force staff in Angola as early as 1986. It included detailed planning for air strikes on air bases and airfields known to be used by the SAAF, including Ruacaná, Ondangwa, Rundu, Grofontein, and Windhoek. All of these operations were intended to include at least a pair of MiG-23MLs flying top cover, another pair attacking air defences, while the rest of the formation would strike selected points. Related exercises were thorough and included numerous attacks on active insurgent bases, always after travelling the last 50 kilometres at an altitude of 50 metres. Indeed, one of the training sessions included the deployment of two Kh-23M radio-command guided missiles, which were fired by Lieutenant Colonel Eduardo González at a FALA base which the intelligence reported as 'abandoned'. Much to the surprise of the Cuban staff, subsequently it received a congratulation from the HQ of the 5th Military Region, FAPLA, because this strike hit a meeting of numerous insurgent commanders, including one lieutenant colonel, one major, and eight captains. Although stopped once disaffected General Rafael del Pino of the DAA/FAR defected flying a light civilian aircraft to the USA in May 1987, preparations for Operation Orange went as far as Havana requesting the delivery of drop tanks for MiG-23MLs from Moscow. The Soviets refused, but the Cubans eventually managed to obtain 30 sets (each including two drop tanks) from Poland. Installed under the moving part of MiG-23's wing, these needed to be jettisoned if the jet was to accelerate and move its 'swing-wing' to the rear. Nevertheless, they were of crucial importance for providing the DAA/FAR contingent with the capability to strike beyond the type's usual range of around 500km.

Ground crew manhandling one of 30 underwing drop tanks acquired from Poland in 1988. Their installation locked the wing in the full-forward position and they had to be jettisoned if the aircraft was to accelerate to a speed of more than 1000km/h. (Tom Cooper collection)


A still from a video showing two MiG-23MLs of the DAA/FAR contingent in Angola, configured in a similar fashion as for the strike on the Caleque Dam: 800-litre drop tanks under the outboard wings, and FAB-250M-62 bombs on underwing pylons and on the under-fuselage hardpoints. (Tom Cooper Collection)

However, instead of one of the South African bases, Castro selected a symbolic target: the Caleque Dam, construction of which was initiated by the Portuguese in 1972, but which was only about 70 percent complete by the time of their pull-out. The reason was that this was the point at which the SADF launched its intervention in Angola – Operation Savannah – in 1975, and that it was on the territory of Angola; another was that the Caleque Dam was overflown by a two-seat MiG-23UB of the DAA/FAR contingent, used for visual reconnaissance on the 8 April 1988, and again on

MiG-23ML serial number C483, seen while powering up its Tumansky R-29 engine at Lubango in 1988 or 1989. Notable under the wing is one of the 30 drop tanks acquired from Poland to stretch the range of Cuban-flown jets for possible attacks on targets in South West Africa. (Tom Cooper Collection)

the 12th. Each time, the pilot in the rear cockpit was equipped with a hand-held Zenith camera, and took a series of photos as the jet flashed by at a speed of 800km/h and an altitude of 30 metres. Therefore, the Cubans were well-informed about the facility and could target carefully selected spots.[32]

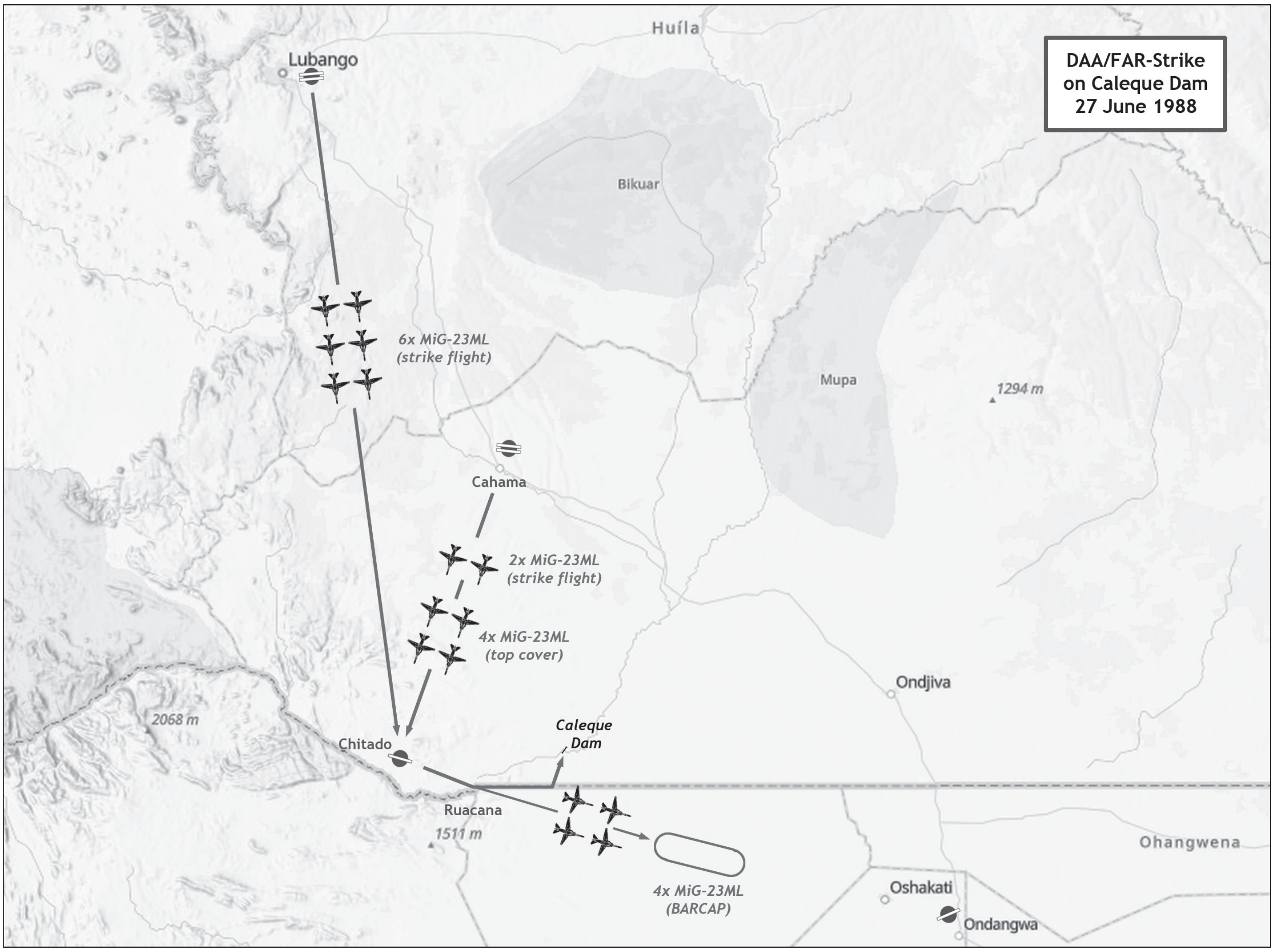
At 12.30hrs of 27 June 1988, six MiG-23MLs equipped with two underwing drop tanks and two 500kg bombs each were launched from Lubango. Once airborne, the jets organised into three pairs separated by 15 seconds, and turned in a southern direction, flying at a speed of 1,000km/h and an altitude of 2,000 metres. Fifteen minutes later, six additional MiG-23MLs commenced taking off from Cahama. The first four – led by Major Zequeira and Captain Alba – were armed with two R-24 and two R-60MK air-to-air missiles each. They led the strike force, and then had the task of establishing a barrier air combat patrol (BARCAP) south of the line Ruacaná-Caleque, and intercept whatever South African jets might try to interfere with the attack. The other two MiG-23MLs from Cahama – piloted by Major Jorge Rodriguez Marquetti and 1st Lieutenant Palacios – were configured with a single drop tank under the centreline and four 500kg bombs. After descending to the tree-top level, all three formations joined north of Chitado: while approaching this area they were sighted by South African patrols but there was no time to forward an air raid warning. Major Ramón Alba Perdomo, who flew as the Number 2 in the formation configured for air combat, recalled:

> My mission was to provide top cover to our strikers. When reaching a pre-planned spot, we jinked upwards and climbed to an altitude of 6,000 metres to a position between the Caleque Dam and the Ondangwa air base. While climbing, I saw the Cunene River, the dam and the bridge. Then I saw Ondangwa. There were instants of uncertainty as I saw fireballs of the bombs and columns of black smoke. But, the enemy aviation did not take off.

Carefully prepared for days, the air strike proved highly effective: led by Major Mauricio López, the first two bomb-armed MiG-23MLs jinked upwards before making a 30-degree dive to release their bombs on the Cunene River Bridge near the Caleque Dam. This was hit in at least two places and destroyed. The next pair followed in fashion and then hit and damaged the sluice gates of the dam, while another two released their bombs on an ammunition convoy of the SADF: three of its weapons missed, but one exploded in between of a Buffel MRAP and an Eland-90 armoured car, killing seven troops of the 8th South African Infantry, and four from the 10th Armoured Squadron. The leader of the final pair (the strike formation that launched from Cahama AB), was Major Marquetti, who recalled:

> I was underway with Captain Carlo Palacio as wingman. We flew at less than 30 metres altitude to Chitado, almost hitting the tops of trees several times. It was a very tense flight at the speed of 1,000km/h, as we could not see other jets in front of us. Then I heard Major Mauricio, leader of the front pair, on the radio: "Reaching the target zone. Bombing!" The action began. We turned left to look for the dam, crossed the Cunene River and made a shallow climb. I saw the target and the impacts of the bombs of the pair in front of us. The smoke and flames made it difficult to see, and the sparks from the transformers looked like fireworks during a holiday. We entered our dive and dropped bombs at the dam and the engine room of the pumping station next to it. As I was pulling out of the dive and away, I looked back to see the impacts: one of them destroyed the main pipeline that carried the water to northern Namibia. The strike was so quick, their air defences did not react: we were the final pair and never saw any flak fire.

Indeed, the entire attack was over within less than a minute, putting big question marks over South African claims to have hit two of MiGs with their 20mm guns, and of one having crashed on the way back to Angola. Actually, the DAA/FAR suffered no losses or damage on this day. Even the MiG-23UB that flew post-strike reconnaissance – crewed by Colonel Pedro Pérez, with Lieutenant Colonel Vega Toscano in the rear seat – returned entirely unmolested.



A map of the DAA/FAR strike on the Caleque Dam, flown in the early afternoon of 27 June 1988. (Map by Tom Cooper)

Air War of 1987–1988

What can be concluded about the air war fought over southern Angola in 1987–1988?

Remarkably, and ironically, both sides – and their fans at home and abroad – frequently claim a 'clear-cut' victory for themselves. Multiple Angolan, Cuban, and sympathising researchers abroad have drawn conclusions that MiG-23s swept the South African Air Force from Angolan skies, and roundly defeating the SADF, at least smashing the myth about its invincibility. The other side is not much better: regardless of whether the leadership of the SADF, South African or sympathising historians in the West, the usual conclusion is that the South Africans were victorious, defeated both the Angolans and Cubans, shot down dozens of 'MiGs' of the DAA/FAR and the FAPA/DAA – and killed thousands of enemies on the ground, of course.

As the content of this and the previous four volumes describes, at least the 'detail' about actual Angolan and Cuban loses merits much more cautious studies. Foremost, there are two issues most commentators have entirely missed: the first is the predilection for comprehending and commenting on the build-up of Angolan and Cuban air power from the Western point of view, in almost complete ignorance of local circumstances. Unlike African states that acceded to independence by an orderly and peaceful process of institutional order, and unlike South Africa – where air power can trace its origins back to the establishment of the Aviation Corps in 1912, and which had a well-developed aviation industry as of the 1970s – the MPLA inherited a geographically isolated, economically underdeveloped, and huge but disintegrating territory with next to no skilled native workforce, no army and no air power to talk about, while facing several large-scale insurgencies and foreign military interventions. FAPLA was next to non-existent as of 1974: it had to be built up from scratch and trained to simultaneously fight a conventional war and a counterinsurgency. Unsurprisingly, it lacked expertise in almost every imaginable military discipline, including those of establishing its own air power and operating it effectively. When – natural and unavoidable – differences of personal, private, and geo-strategic nature between its political and military leaders are added to the calculation, as well as the fact that (to quote one of the involved advisors from Eastern Europe) for the mass of the Angolan population of the 1970s and 1980s 'even something as simple as a bicycle was a technological marvel' of sort, the conclusion is unavoidable that the build-up of Angolan air power could not help but be marred by all sorts of problems.

Certainly enough, the training of native pilots and ground crews was initiated before the independence, but initially focused on the operation of light civilian aircraft and transports: while this aspect progressed at a reasonable pace, due to the Cuban lack of means, and Soviet feet-dragging, the build-up of the combat component was incomplete even 10 years later. The return of large groups of cadets from training in the USSR bolstered the FAPA/DAA to about 7,000 in 1983, but the majority of the force still operated ground-based air defence weapons based on Soviet technologies of the 1960s.

Cuban MiG-23BNs in Angola[33]

One of the MiG-23BNs of the DAA/FAR (serial number 725) seen with its ground crew at Cahama AB in July 1988. (via Luis Dominguez)

As well as taking great care to bolster the air defences of the main bases of the ATS and FAPLA in southern Angola, through early 1988 officers of the DAA/FAR also took care to study the condition of the FAPA/DAA, and the Cuban air force's contingent in the country. The most obvious finding was the critical shortage of offensive capability: except for the small number of Su-22s that were still operational with the 26th RACB, both the Angolans and Cubans had next to no dedicated fighter-bombers, and the Soviets remained 'reluctant' to deliver any to Luanda. Eventually, the Cubans opted to deploy one of their only two units equipped with MiG-23BN fighter-bombers. On 22 June 1988, the merchant *Playa Larga* left the port of Mariel carrying their support equipment. Another ship, the *Las Coloradas* (the only ship available with hatches large enough to enable loading of aircraft into its hold) then followed nine days later, carrying the eight MiGs.

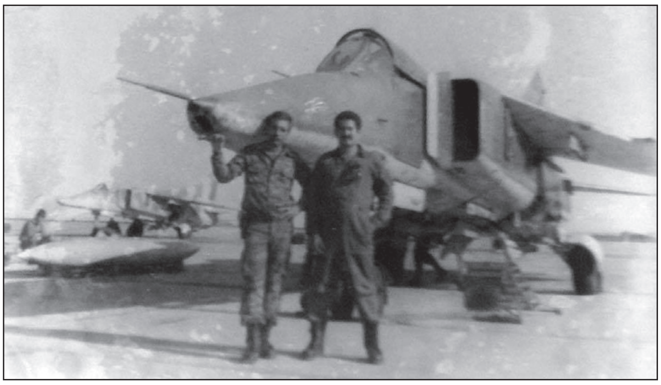
The MiG-23BN was a dedicated strike variant of this prolific family. It had an effective combat range of about 600km, was equipped with a pre-programmable navigational-attack suite that could fly it almost automatically, like a cruise missile, and with a load of up to 3,000kg of bombs on six hardpoints under the fuselage and the wings. In the early 1980s, their deliveries

The development of the flying and combat components began in earnest only during the following years. Unsurprisingly, the FAPA/DAA – which entirely depended on voluntary enlistment (except for the period 1985–1988) – was still in the process of building up and critically short on personnel and operational experience during the campaigns of 1987–1988. Consequences like long-term dependence on external assistance and no development of native military thinking were inevitable.

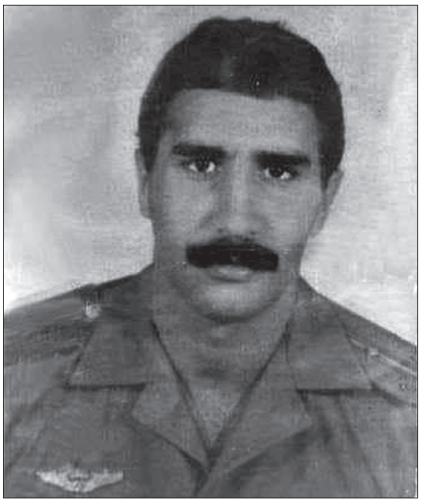
In comparison, Cuban air power was relatively well-established as of the 1970s, but still lacking recent combat experience and thus overdependent on Soviet theories about training and combat operations. Both the Angolans and Cubans suffered due to Moscow's persistent reluctance to deliver advanced equipment: it took the painful experiences of 1978–1983 for both Havana and Moscow to realise the seriousness of deficiencies and initiate the necessary reforms. Ironically, at that point in time, a giant gap developed between the way Cuban and Soviet officers in Angola understood and conducted the war. While the Soviets insisted on dogmas based on experience from the Second World War, the Cubans applied lessons learned and began to adapt: insistence on thorough training of their pilots prior to their actual deployment in combat, and a series of high-intensity exercises carried out in 1985–1987, converted the DAA/FAR contingent in Angola into a highly effective combat organisation. Many deficiencies remained, however – mostly influenced by the Soviet refusal to deliver advanced and offensive weapons systems. Moreover, the mass of air defence weapons delivered by the USSR was designed for deployment within the Soviet air warfare system, much of which was non-existent in Angola. While Western advisors gradually developed a potent counterinsurgency component of the FAPA/DAA, equipped with Alouette III, Mi-8, and Mi-25/35 helicopters, and Pilatus PC-7 light strikers, and operated effectively against the FALA in central Angola, its activity was deeply overshadowed by the conventional showdown with the SADF and insurgency further south. There, both Angolan and Cuban pilots had to operate ill-suited point defence interceptors like the MiG-21 and MiG-23 as fighter-bombers, while lacking even the support of ground equipment necessary to do so effectively, not to mention the lack of electronic countermeasures against threats they were facing.

To add salt to the injury, a constant barrage of South African and UNITA claims about low morale, lack of discipline, desertions, and heavy losses in equipment and personnel among both FAPLA and the FAPA/DAA has created the impression of two extremely unprofessional forces, almost entirely incapable of countering the SAAF and the SADF. Arguably, amid press reports about theft, assaults, and drunken military drivers, even the authorities in Luanda repeatedly called for greater discipline within their armed forces: in 1988, also a case became known where the FAR had to prosecute and sentence 11 Cuban troops for looting and mistreating Angolan civilians. However, nothing of this was related to the pilots to Cuba sparked a significant diplomatic crisis between Havana and Washington, with the latter arguing that it violated the commitment made by the USSR during the Cuban Missile Crisis of 1962 not to deliver any kind of offensive weapons to Castro's government.

To some dismay of the DAA/FAR officers already in Angola, they arrived much too late to take part in combat operations: indeed, they were still on board *Las Coloradas* when the strike on the Caleque Dam took place on 27 June 1988. The reason was that the ship suffered a breakdown of its machinery and was helplessly drifting in the Atlantic Ocean. Eventually, it had to be towed to Luanda by another merchant, *Isla Violeta*. Once finally unloaded, late in the first week of July 1988, MiG-23BNs were assembled and flight-tested at Luanda IAP, and then transferred to Cahama AB. Commander of the squadron was Lieutenant Colonel Armando Castellanos, who was promptly tasked with planning air strikes on various targets in South West Africa, foremost Grootfontein AB, more than 500km away. This envisaged his MiGs making a detour before reaching their target so to strike it from south towards the north, and the deployment of a heliborne search and rescue team carried by helicopters to Xangongo. Rather surprisingly for everybody involved, but in line with the general politics of disengagement, the squadron was withdrawn back to Luanda in August of the same year. Once there, on 6 December 1988 it lost one of its jets (serial number 716) in the course of a training flight by Julio Herrera Guerra, in the Ambrizette area, north of the Angolan capital. The remaining MiG-23BNs were disassembled and shipped back to Cuba.



Humberto Trujillo (right) – a pilot of the DAA/FAR – with one of the MiG-23BNs at Cahama AB. Notable to the left rear is the unlucky jet with serial number 716, which crashed in December 1988. (via Luis Dominguez)



Julio Herrera Guerra, the unlucky pilot of the MiG-23BN fighter-bomber of the DAA/FAR-unit deployed to Angola, who crashed on 6 December 1988. (via Luis Dominguez)

and ground crews of either the DAA/FAR contingent in Angola, or the FAPA/DAA, and the way they served: not one of them ever defected (although there was more than enough opportunity to do so), and none is known to have become involved in any kind of crime during their tours of duty in 1987–1988. On the contrary: they continued flying and fighting against all odds, so also after suffering heavy losses.

Another much-ignored aspect of this air war is the issue of logistics. Most of the fighting in Angola during 1987–1988 took place in the most remote and inaccessible parts of the country. This meant that both FAPLA and the FAPA/DAA had to first build up the logistical infrastructure. Even once this was in place, the air war was conducted over extended lines of communication, constantly exposed to insurgent attacks. At that time, Angola manufactured next to nothing necessary to operate air power: virtually everything – including food – had to be imported, shipped to ports relatively 'close' to the frontline (but still more than 500km away from it) – like Lobito and Namibe, for example – and then hauled by truck, aircraft, or helicopters all the way to Huambo, Lena, Menongue, Cuito Cuanavale, and Cahama. Unsurprisingly, the air power – a critical factor in every counterinsurgency effort – took nearly 15 years to acquire the necessary assets, equipment and expertise to conduct effective combat operations.

Another metric frequently used to gauge the flow and outcome of the air war over Angola of 1987–1988 is the number of combat aircraft supposedly available to each of the involved parties, their equipment and performance. In this regard, historians usually like to point out that one of the air forces involved had more combat aircraft available than the other. The cold matter of fact was that it did not matter if the SAAF acquired 16 Mirage F.1CZ interceptors and 32 Mirage F.1AZ fighter-bombers between 1975 and 1978: what did matter was how many of these could be kept fully mission capable (i.e. 'operational') at air bases within reach of the battlefield. Usually, that number was limited to about a dozen. In similar fashion, it did not matter whether Angola received 50 or 70 MiG-21s, and similar numbers of MiG-23MLs between 1984 and 1987: it rarely had more than about 20 forward deployed at Menongue. Simultaneously, other MiGs and Sukhois had to be kept operational at air bases like Luena (usually about a dozen) and Yuri Gagarin (the main base for Su-20Ms and Su-22s), because of defence and/or combat requirements in those parts of Angola. Yet others were kept further to the rear, or not even in the country: the Soviet-made aircraft were designed to last between 150 and 400 hours of intensive flying. After that, they were required to undergo complex overhauls. Related work required a complete disassembly, large-scale replacement of most worn-out parts and subassemblies, and reassembly of every piece of the aircraft. As of the 1970s and 1980s, Angola had no facilities capable of carrying out such work. Because of this alone, up to one third of the delivered jets were not available at any given time: either on their way to overhauls in facilities in the USSR or elsewhere in Eastern Europe, or undergoing those overhauls, or on their way back. Finally, the FAPA/DAA was so busy with preparing additional pilots and ground crews that it constantly had to keep back a significant portion of its fleet for their training. However, combat operations were extremely intensive: so much so that refresher training for pilots that had not flown specific types for a while frequently ended in them being sent to fly combat operations, nevertheless. Unsurprisingly, as of 1987–1988, there was no way for the DAA/FAR contingent in Angola and for the FAPA/DAA to keep more than about a dozen jets forward deployed in Menongue in fully mission capable condition at any given time.

Something like the final of the usual ways of gauging the outcome of this war are estimates based on the flight performance of the deployed types. Usually quoting comments by Western pilots that flew MiG-23s, not only many military historians, but even SAAF veterans like to compare this type with the US-made McDonnell Douglas F-4 Phantom, or the older Republic F-105 Thunderchief. Actually, this is fundamentally wrong. No doubt, a number of Westerners received the opportunity to flight-test MiG-23s during the 1970s and 1980s. However, the problem entirely ignored by most analysts is that the versions flown by Western pilots were the old MiG-23MS interceptor, the MiG-23BN strike aircraft, and the MiG-23UB two-seat conversion trainer. These were also the variants flight-tested by two veterans of the US Air Force hired by the Libyans in the late 1970s, and the variant Egypt supplied to the USA in 1979–82 period, enabling the establishment of the 4477th Test and Evaluation Squadron, US Air Force. All three were renowned for their poor technical reliability and awful (indeed, frequently fatal) flight performance.

However, except for the MiG-23UB – which was combat capable but rarely utilised for such purposes – Angola never received any of these early variants. On the contrary, it acquired the MiG-23ML version, which – in comparison to the early MiG-23MS – was actually an entirely new aircraft, both in regards of flight performance and weaponry. Because it entered service in the USSR only in the late 1970s, and was not exported before the mid-1980s, the MiG-23ML was an unknown quantity in the West: its performances came as a big surprise when crews of the US Navy encountered it off the coast of Libya in 1986, even more so because by that time it was flown by an entirely new generation of native pilots, trained by native – not Soviet – instructors to fly the type to the limits of its flight envelope. Although unaware of developments in Libya, the Cubans in Angola followed the same pattern, taught their pilots to fly MiG-23MLs to the limits of its capability, and indoctrinated them how to deploy the type's weaponry to their advantage. Combined with intensive and realistic training, and the availability of weapons like R-24R/T and R-60MK, this is what 'won the day' during the fateful air combat with SAAF Mirages on 27 September 1987, and what influenced the flow of the air war for next six months.

Even then, the 'MiG-23ML factor' was only one piece in a giant puzzle: the rest was the fact that through March–June 1988, the deployment of additional Cuban air defence units converted the RA/DAAS into a highly effective, truly integrated air defence system that severely curtailed SAAF's freedom of operations over southern Angola. This is why it can be said that the Angolans and allies – foremost the Cubans – established at least aerial supremacy over the battlefields of 1988. By all the excellence of their pilots – sometimes claimed to be the 'best in the world' – there is no doubt that the South Africans learned their lessons. Grudgingly, they ceased openly challenging the enemy in the skies, and when Castro 'unleashed his Floggers' on 27 June 1988, even the leadership of the SADF was quick to accept the reality. Facing the alternative of fighting an all-out war against an enemy in possession of at last one clear advantage, they opted for disengagement. While related discussions are certain to continue raging for years to come, and when one accepts the fact that the Cuban propaganda claims published ever since are completely irrelevant, there is no doubt that the MiG-23 won no air war over Angola, broke nobody's hearts, and resulted in no political changes in South Africa. However – combined with skilful manoeuvring of the leadership in Havana at the diplomatic stage – the performance of the DAA/FAR contingent proved crucial in developing the conditions necessary to force Pretoria into serious negotiations that resulted in its withdrawal: not only from Angola, but, ultimately, from South West Africa too.

6

The Endgame

After the strike of 27 June 1988, all the Cuban units in southern Cunene Province braced for a South African retaliation. However, the leadership of the SADF was impressed enough to abandon all planning for operations to expel the enemy from the area: instead, the 10th Division SADF was ordered to prepare for the *defence of South West Africa*. This resulted in the development of plans for multiple contingencies, ranging from countering large-scale infiltrations of PLAN insurgents to mobile defence in depth in response to a Cuban invasion, and even an airborne assault on the port of Namibe. In the event of the Cubans advancing south of the border, the FAR was to be drawn deep into the South West Africa, far away from its supply bases, and then hit by air strikes and counterattacks from the east, which would drive it back to Tchipa, Xangongo, and Ondjiva, and further north. Obviously, calculating the results of a campaign in which one division of the SADF would have to slug it out with a full division with five brigades of the FAR, was anything other than easy. Unsurprisingly, at that point in time Pretoria opted for diplomacy. In June 1987, Luanda and Washington initiated mutual negotiations: in January 1988, these were joined by Cuba, followed by South Africa. The result was a ceasefire agreement effective from 8 August 1988. Further negotiations led to the New York Accords, signed on 22 December 1988, which granted the independence of South West Africa as Namibia, regulated an end to the direct involvement of Cuban and South African troops in Angola, and their withdrawal starting from 1 April 1989. In the light of demands from Luanda, which demanded a period of four years, Havana agreed its withdrawal to be conducted at a rate of 3,000 troops a month, and to last 27 months in total. This request was accepted by South Africa, and thus on 22 December 1988, the United Nations Security Council passed Resolution 626, creating the United Nations Angola Verification Mission (UNAVEM) as a peacekeeping force to control the disengagement.[1]

Cheering Cuban troops with a photograph of Fidel Castro in Angola in 1988. (Albert Grandolini Collection)

FIDEL CASTRO

New Kids on the Block

For its part, FAPLA did not stand still, but exploited the opportunity to reorganise and restructure: with the USSR experiencing a deep economic crisis, Moscow was willing to deliver any kind of conventional armament and equipment demanded by Luanda, and – unlike the Cubans and insurgents of the PLAN, who were in the process of withdrawing, and thus limited their activities to defence – Soviet advisors remained in the country. Moreover, Angolan representatives established connections to Western Europe, and began purchasing growing amounts of armament via French intermediaries. As a result, by May 1990, FAPLA was bolstered to about 120,000 troops, organised into four military regions and about 80 brigades. However, about 50 percent of the latter were re-equipped with large numbers of BMP-1 and BMP-2 IFVs and had their firepower bolstered through addition of large numbers of ZPU heavy machine guns and ZU-23 autocannons. Meanwhile, the withdrawing Cuban armed forces in the country stopped engaging in direct combat: their primary task became that of deterrence and defence against attacks beyond the southern combat zone, protection of strategic and economically critical facilities, logistic coordination, air defence, and security. Of course, like the SMMA, the MMCA continued supporting FAPLA through advice and training, but the two were not alone in doing this anymore: growingly dissatisfied with the level and quality of training provided by the SMMA, Luanda began turning to Portugal and North Korea for advice and training. While Lisbon never officially provided arms, military assistance, or troops, in 1983 retired Portuguese admiral Rosa Coutinho was contracted to set up a company to hire former military and reserve officers, who then served as instructors with FAPLA. At least 32 were around in 1986, and some were still in the country as of 1988, primarily training FAPLA's special forces. Moreover, North Koreans were training Angolan snipers, and providing military and ideological instruction to SWAPO and militants of the African National Congress in five training camps constructed north and north-east of Luanda.[2]

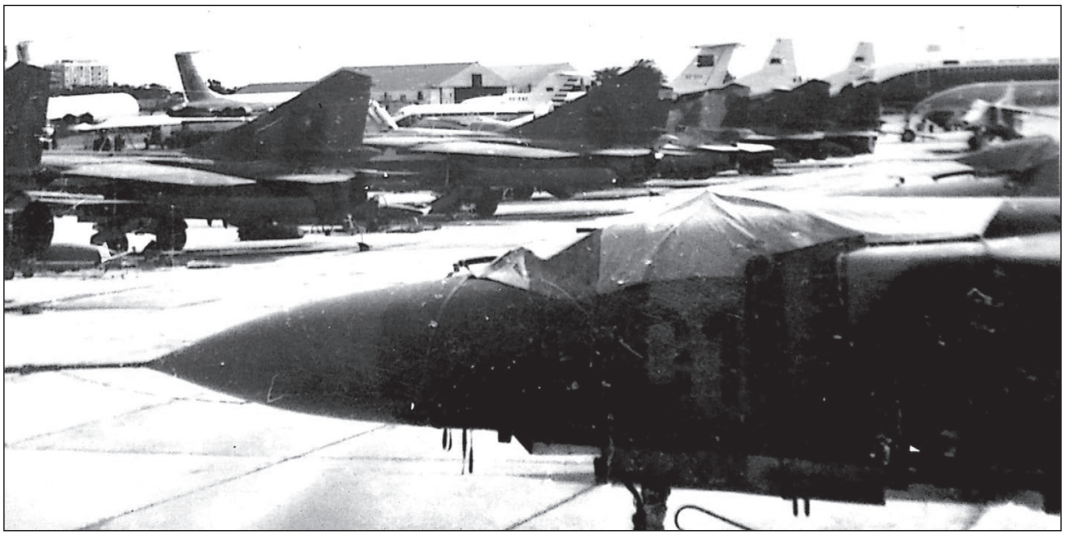
FAPA/DAA in 1988–1989

During the Cuban withdrawal from Anglo, Havana and Luanda agreed to FAPA/DAA donating a significant number of its aircraft and helicopters to the DAA/FAR. Amongst these were at least eight MiG-23MLs and several Mi-8s and Mi-25s.[3] They were replaced by a large number of new aircraft and helicopters acquired from the USSR. These included at least 20 MiG-21bis and 10 MiG-23MLs (amongst them a batch of MiG-23MLDs, which was the most advanced sub-variant of the late 1980s). Correspondingly, by the end of 1988, the 9th RACB was expanded through the addition of the second MiG-23ML unit – in addition to two squadrons of MiG-21s – and all of its pilots were Angolan.[4]

Meanwhile, sometime between late 1987 and early 1988, Moscow accepted Luanda's demands for deliveries of Sukhoi Su-22 fighter-bombers, and 16 pilots and 30 technicians were sent to the USSR for conversion training. They returned to Angola in early 1989, together with the

The crew of a BMP-1 infantry fighting vehicle of FAPLA, together with their mount. Visible in the rear is a BM-21 launcher. (Albert Grandolini Collection)

A BMP-2 infantry fighting vehicle of FAPLA. Sharing the basic chassis with the BMP-1, but with a single 30mm 2A42 autocanon installed in the turret, this version proved much more effective in typical Angolan circumstances. (Albert Grandolini Collection)

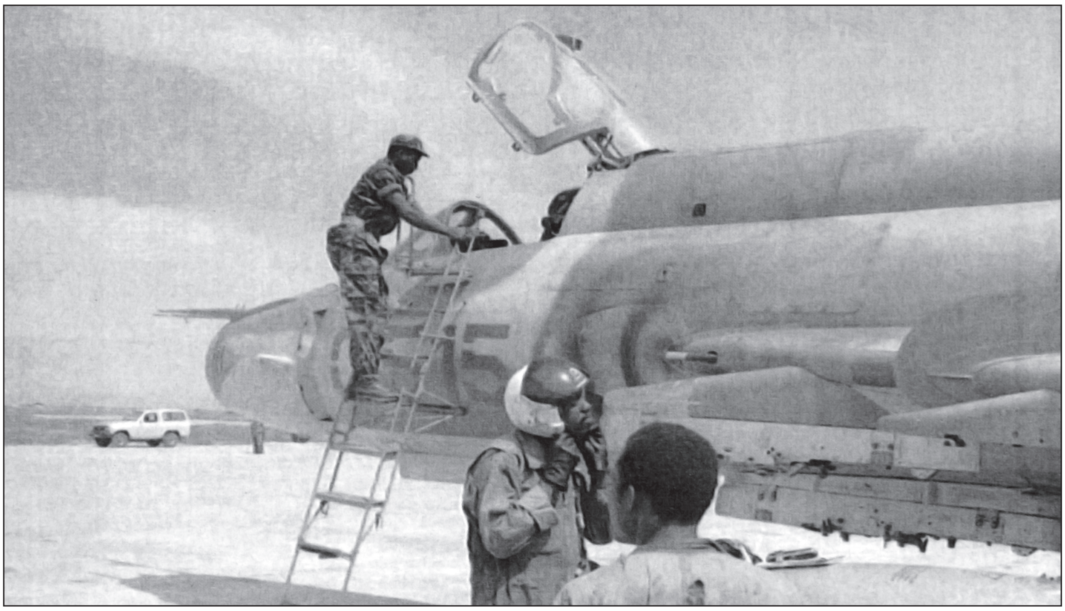


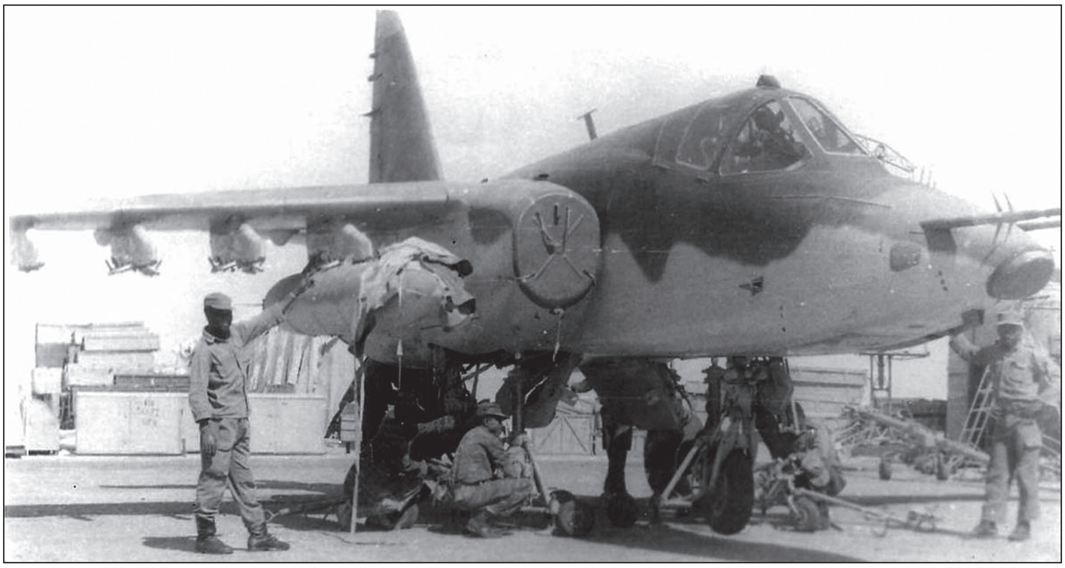
Long lines of MiG-23MLs and MiG-23BNs of the DAA/FAR contingent at Luanda IAP in 1988 while waiting for shipment home to Cuba. With permission of the Angolan government, the Cubans took away at least eight, reportedly up to 26 MiG-23MLs, and a similar number of other transports and helicopters. Visible in the foreground is the MiG-23ML serial number C401 – the first jet of this type acquired by Angola. (Tom Cooper Collection)

total of 14 Su-22M-4 fighter-bombers, two Su-22UM-3K two-seat conversion trainers, and a team of Soviet advisors led by Lieutenant Colonel Nicholas Adonin, all initially home-based at Yuri Gagarin AB, outside Namibe. Su-22s were not yet in the country before Luanda managed to negotiate another major acquisition: in late 1988 it received a total of 10 Sukhoi Su-25 strike fighters and four Su-25UB two-seat conversion trainers. These subsonic, single-seat, twin-engine jets were not only better armed than any of the MiGs and Sukhois the Angolans flew before, but had their cockpits and engines protected by armour, and was thus more survivable against ground fire than any other types in service. The conversion of Angolan pilots for them was undertaken in the USSR: on their return to Angola, they were worked-up by a team of Soviet instructors at Negage AB. However, the squadron flying them experienced a nasty accident as its pilots began flying their first solos: two Su-25s collided on take-off and crashed. Although both fliers survived, the unit thus began its operations with a much-reduced number of available airframes. The availability of Su-22M-4s and Su-25s enabled the definite establishment of the 26th RACB – a wing the development of which can be traced back to the early 1980s, but which was constantly delayed by earlier Soviet reluctance to train the necessary Angolan personnel and deliver suitable aircraft, and which suffered such problems while trying to operate Su-20Ms.[5]

Finally, Luanda continued its efforts to establish links to Western arms manufacturers and acquire weapons from them. The highly profitable Angola Airlines (*Linhas Aéreas de Angola*, formerly *Transportes Aéreas de Angola*, and still colloquially known under the abbreviation TAAG) was in the process of expanding its services from domestic flights to lines connecting Luanda with numerous African countries, Cuba and Europe, and thus began expanding its fleet with US-made Boeing 707s and 737s. When this effort encountered US opposition, the TAAG began purchasing Western European airliners, foremost the Airbus A.330. By that time, the FAPA/DAA was well underway to following in fashion. In January 1988, a group of 15 technicians and six pilots trained in France returned to Angola together with first two Aérospatiale SA.365F helicopters for the FAPA/DAA. Following deliveries of additional helicopters of this type, in July 1988, the part of the 17th RAH equipped with Aérospatiale SA.342 Gazelles acquired since 1985, and SA.365Fs, and trained in France and Yugoslavia, was separated to create the 164th Independent Helicopter Squadron, home-based in Soyo, in north-western Angola.[6]

Overall, through the first half of 1988, the FAPA/DAA significantly expanded its capabilities and effectiveness: it became capable of providing close air support and supplies to ground forces, strike FALA bases and interdict aircraft hauling contraband to it, evacuate wounded personnel, and perform reconnaissance and liaison operations. Moreover, it significantly expanded its ground facilities:


The pilot of an Su-22M-4 in the process of preparing for a training flight aboard serial number C515. The acquisition of this version significantly bolstered the strike capacities of the FAPA/DAA because of its advanced navigational-attack suite. (Pit Weinert Collection)


Ground crews of the Su-25 squadron in the process of post-assembly testing of one of their 'brand new' mounts. As it eventually turned out, the aircraft delivered by the Soviets were all second-hand jets from the Soviet air force (including several 'veterans' of the war in Afghanistan, with combat damage), which received only the most important repairs and lots of new paint before delivery to Angola. (Albert Grandolini Collection)

Pilots and ground crews of the Su-25 squadron of the 26th RACB of the FAPA/DAA, together with their Soviet instructors, seen during the work-ups at Negage AB in 1989. (Albert Grandolini Collection)

not only through operating 20 air bases and airfields, and more than 220 other airstrips around the country, but also through obtaining the capability to service its aircraft at home – even if periodic overhauls of Soviet-made combat aircraft still had to be performed abroad.[7]

Military Solution[9]

While the majority of foreign observers considered the conflict between the MPLA and UNITA as in a state of strategic balance, both sides were determined to continue and conclude what was now a 'civil war' by military means. Indeed, after a relative lull through mid-1988, the war went on and there was no trace of compromise. Part of the reason was that although South Africa had withdrawn from Angola and – at least officially – ceased support for UNITA, the USA continued providing the insurgency with materiel and other assistance worth between US$45 and 60 million annually.

The leader of UNITA, Jonas Malheiro Savimbi, renounced his earlier Maoist leanings and contacts with China, and – supported by a highly effective propaganda campaign in the West – began presenting himself as a protagonist of anti-communism. This earned him not only the support of the administrations of US Presidents Ronald Reagan and George W Bush, but especially of the Central Intelligence Agency (CIA) and private circles in the USA. Correspondingly, FALA was able to recover some of its strength after the losses of late 1987 and early 1988: by mid-1988, it was back to boasting about 40,000 combatants, including up to 28,000 regulars. At least according to UNITA's reports, these were in control of much of Bié and almost all of Moxico provinces south of the Benguela Railway, and nearly all of Cuando-Cubango

Table 8: FAPA/DAA Order of Battle, 1989–91

Wing	Squadron	Base	Commanding Officer and Notes
7th RATM		Luanda IAP	
	An-26 squadron	Huambo, Menongue	
9th RAC		Lubango AB	Captain João Baptista Costa
	MiG-21 squadron	detachments in Menongue and Cuito Cuanavale	Captain José Alexandre Dos Santos 'Celito'
	MiG-21 squadron	detachment in Luena	
	MiG-23ML squadron	Detachments in Luena and Menongue	Captain João Manuel da Silva 'Jojo'
	MiG-23ML squadron	Detachment in Cahama	
17th RAH		Huambo AB	Captain José Catumbela[8]
	Mi-17 squadron	detachments in Luena and Cuito Cuanavale	
	Mi-25 squadron	detachments in Luena and Cuito Cuanavale	
	Alouette squadron	detachments in Luena and Cuito Cuanavale	
26th RACB		Yuri Gagarin AB	
	Su-22M-4 squadron	Detachments in Cahama and Menongue	
	Su-25 squadron	Detachment in Cahama	worked-up at Negage AB

Province except for the stretch of territory between Menongue and Cuito Cuanavale. This was a de-facto 'state within state', possible primarily thanks to an extensive logistical infrastructure, including at least 10,000 troops and 1,000 vehicles (mostly of South African origin), and constantly expanding network of roads and supply depots, as well as airstrips in Licua (outside of Jamba, UNITA's 'capital'), Mavinga, Cazombo, Lumbala, Lucuse, and Cangamba. FALA not only possessed a substantial arsenal of weapons captured during earlier fighting or donated by the SADF, but was kept well-supplied by the USA, too. This included a number of T-34/85 and T-54/55 tanks, BM-21 launchers, 76mm and 122mm field guns and howitzers, mortars up to 120mm, and 106mm recoilless rifles. It operated numerous anti-aircraft weapons, including US-made FIM-92 Stingers and also Soviet-made SA-14s.

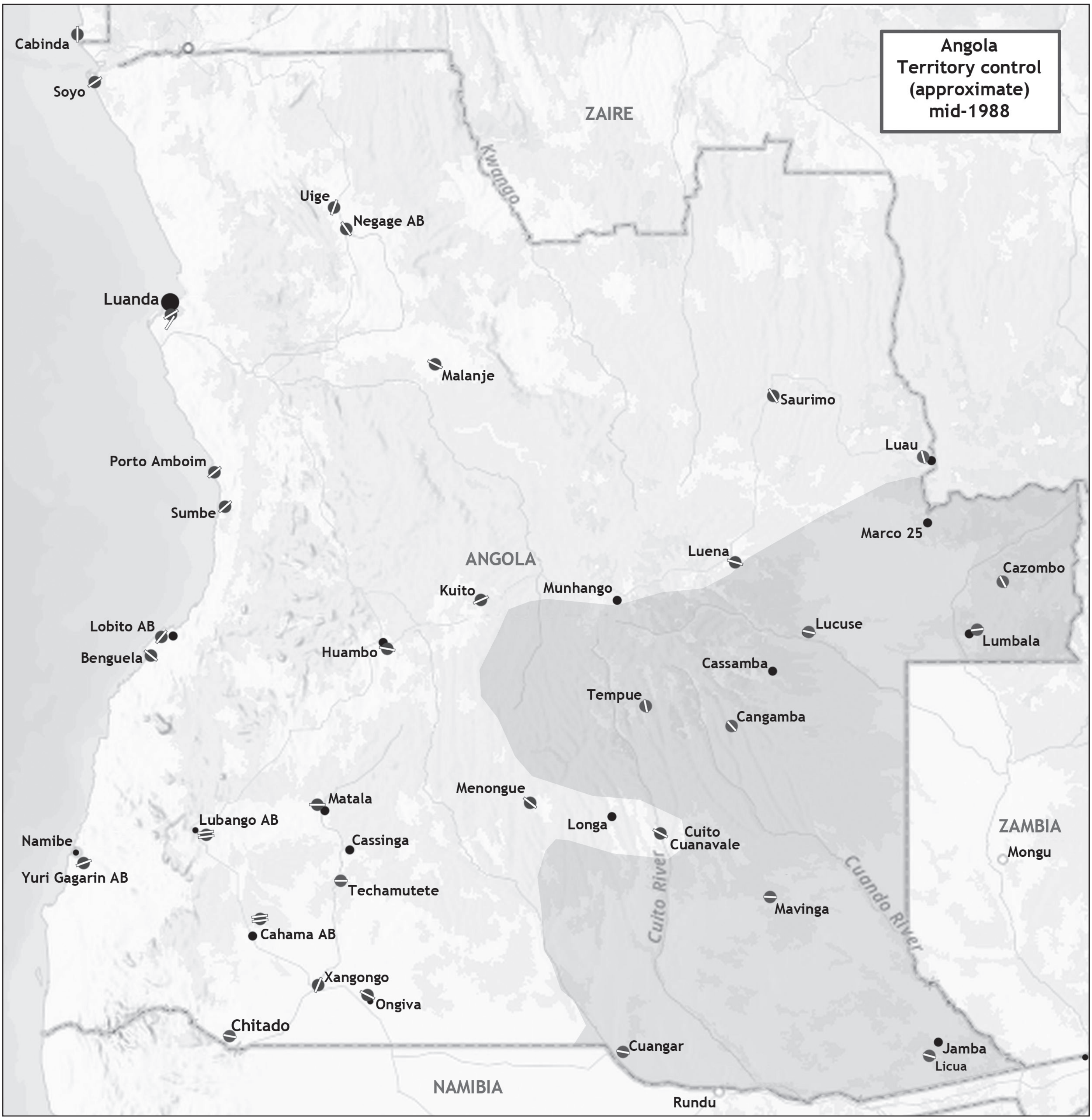
Unsurprisingly, through late 1988, the Angolan insurgency intensified its operations in southern and eastern Angola. Perhaps the most important of these was in Bié Province, where Savimbi aimed to penetrate western central Angola – Huambo and Benguela provinces, both predominantly populated by the largest ethno-linguistic group of Angola, the Ovimbundu. The government resisted fiercely, though, and FALA's first drive on town of Huambo, the second largest in Angola, was stopped east and south of Kuito, leaving UNITA with few options but to publish bombastic reports about new victories and shoot-downs of transport aircraft 'carrying Angolan and Cuban soldiers', on 15 and 18 June 1988.

Jonas Malhero Savimbi, founder and leader of UNITA, and thus the Commander-in-Chief of the FALA. (Albert Grandolini Collection)

Reigniting Fires

Through October and November 1988, FALA continued attacking garrisons along the Benguela Railway, between Kuito and Luena. Eventually, Savimbi and his commander for this area, Brigadier David Wenda, focused on the Munhango area, where the insurgency routed a FAPLA brigade and destroyed a key bridge over the Cuanza River. However, when the FALA attempted to overpower the garrison of Cuemba, about 65 kilometres further west, FAPLA reacted by reinforcing its 3rd Military District with six infantry brigades: while one of these saved the garrison of Cuemba, the others sough to improve the situation further east with a series of battalion-sized counterinsurgency operations. The idea was to sweep selected areas with rapidly moving mechanised formations, to force suspected insurgency supporters out, and secure FALA's forward supply depots. By December 1988, the situation reached a stalemate. However, Savimbi remained

At least according to insurgent claims, the FAPA/DAA lost a number of Mi-25/35 gunships and MiG-21s during the fighting south of Cuito Cuanavale in January–March 1989. No confirmation for such claims has ever become available, but this Mi-35 was photographed sometime in 1988 or 1989 during its recovery following some sort of a mishap and an emergency landing in the bush. (Albert Grandolini Collection)


Angola
Territory control
(approximate)
mid-1988
ZAIRE
Kwango
Cabinda
Soyo
Uige
Negage AB
Luanda
Malanje
Saurimo
Luau
Porto Amboim
Sumbe
Marco 25
ANGOLA
Luena
Cazombo
Kuito
Munhango
Lobito AB
Benguela
Huambo
Lucuse
Lumbala
Cassamba
Tempue
Cangamba
Menongue
Matala
Longa
Lubango AB
Cuito
Cuanavale
ZAMBIA
Mongu
Namibe
Cassinga
Yuri Gagarin AB
Techamutete
Mavinga
Cuito River
Cuando River
Cahama AB
Xangongo
Ongiva
Chitado
Cuangar
Jamba
Licua
NAMIBIA
Rundu

A map of Angola with territory claimed by UNITA as of 1988 shaded in grey. (Map by Tom Cooper)

determined: in January 1989, only days after proposing an immediate ceasefire and direct negotiations with the government, he ordered FALA into a new large-scale multi-prong attack on Huambo, thus starting a pattern of similar 'peace and negotiations offers', each of which was followed by ever more attacks.[10]

Mobutu's Double Game

Still having enough forces to defend its strongholds, in March 1989, FAPLA counterattacked in Bié Province, and drove FALA away from Huambo and Kuito. Indeed, the failure of the insurgency prompted even some of its supporters abroad to demand negotiations. Consequently, on 28 June 1989, President Mobutu Sese Seko of Zaire invited 18 African leaders – including President dos Santos of Angola and Savimbi of UNITA – to Gbadolite for consultations. Eventually, Mobutu claimed the two to have signed the Gbadolite Declaration, including a ceasefire effective from 22 July. However, in reality, he wrongly informed the MPLA that UNITA had agreed to recognise the Angolan constitution, integrate its forces into FAPLA and temporarily exile Savimbi. In similar fashion, he misinformed UNITA that the MPLA had accepted its conditions. Moreover, this agreement included no provision for the USA stopping its funding for UNITA. Unsurprisingly, as soon as each party discovered the truth, the agreement broke down. Through July, FALA deployed multiple teams armed with US-provided FIM-92 Stingers near airports in central Angola. On 23 July 1989, one of these shot down an An-26 of the FAPA/DAA over the Chana area. The aircraft was operated by a Soviet crew, which attempted an emergency landing with one engine and then the entire wing afire, but crashed, killing 42 out of 48 people on board. Amid growing tensions, FAPA/DAA launched an aerial offensive against all the known insurgent bases.

On 30 May 1989, Captain Eloy Alberto Mir Travieso of the DAA/FAR contingent in Angola – seen on the right in this photograph taken in front of the MiG-23ML serial number C412 – was killed in a crash of a MiG-23UB during a training sortie from Luanda AB. As far as is known, he was the last Cuban pilot killed in Angola. (via Luis Dominguez)

However, this not only led to an incident in which a Cuban-flown MiG-23MLs almost shot down a British Aerospace BAe.125 business jet carrying the President of Botswana (see the accompanying box): together with continuous deliveries of Stingers, and the capture of 33 SA-14 MANPADS from FAPLA's stocks – it enabled UNITA to report ever more aircraft as shot down. While most of these proved wildly exaggerated, several were eventually confirmed by Angolan sources.[11]

On 19 August 1989, the insurgents shot down the MiG-23ML piloted by Captain José Maria Penelas, in Cuando-Cubango Province, and according to Luanda more than 200 FAPLA troops and 300 civilians were killed throughout the same month. On 1 September 1989, a MiG-21bis flown by Lieutenant Hernani Viriato Monteiro was shot down in the Lueyuei area of the Moxico Province. By this time, a number of FAPA/DAA combat operations were undertaken by Soviet advisors who were given a free hand in regards of their involvement. This became clear on 31 October 1989 when Vladimir Leonid Lipatov, an advisor assigned to the 9th RACB, was shot down and killed during a ground strike on insurgent positions in the Lubango area while flying an Angolan MiG-23ML.[12]

Unusual Test

When the campaign of air strikes – and all efforts to intercept transports hauling contraband to UNITA – remained fruitless, FAPLA was left with little choice but to organise a new, large-scale effort to crush the insurgency through striking at its very heart. The initial idea was to request that the new government in Windhoek grant permission to deploy Angolan units into the Caprivi Strip, in north-eastern Namibia, to attack from the southern direction. However, regardless of its traditional alliance with Angola, the SWAPO government turned this request down. Therefore, the High Command FAPLA and advisors of the SMMA returned to their classic idea for an offensive along the usual route: from Cuito Cuanavale on Mavinga, and then all the way to Jamba. Planned in cooperation between the High Command FAPLA and the SMMA, this enterprise received a suitable codename: Operation Final Assault.[14]

Prior to launching the new offensive, Luanda had to make sure its troops would not find themselves on the receiving end of another South African intervention. Certainly enough, as of October 1989, Pretoria ceased all its official aid for UNITA, and the mass of SADF forces had left Angola (as had 37,000 Cuban troops). However, Angolan intelligence lacked precise details on possible deployment of SAAF fighter-bombers in Namibia. Therefore, on 20 December 1989, the FAPA/DAA sent two MiG-21bis of the 9th RACB from Cahama AB on a 'reconnaissance' over Namibia. The two jets (serials C-340 and C-341) crossed the border and ventured about a dozen kilometres further south, before one of them returned to Angola. The other, piloted by Lieutenant Domingos José de Almeida Vinez continued further south, until encountering a tropical thunderstorm. Although avoiding the weather, he eventually ran out of fuel and landed on a road near a farm, about 60km south of the border. The SADF quickly converged on the site and collected both the damaged jet (which ended up at the SADF Museum in Swarktop) and its pilot, but 'bought' his explanation that he 'got lost due to the bad weather'.[15]

Operation Final Assault

Following months of preparations, and once Luanda was certain UNITA would receive no direct support from the SADF, Operation Final Assault was launched with the expected onset of the rainy season on 19 December 1989. Five reinforced infantry brigades, two mechanised battalions, and an artillery

Theoretically, the FAPA/DAA entered the next period in its history – 1988–91 – well-equipped with recently-delivered combat aircraft, including these two MiG-23MLs (serials C477 in foreground, and C486 or C488 in the rear), photographed while undergoing maintenance at Lubango AB. However, many of the jets turned out to be second-hand aircraft and former mounts of the Soviet air force. Due to heavy combat deployment, many were rendered non-operational in the matter of a few months. (Albert Grandolini Collection)

Surviving the Flogger[13]

Time and again, commercial airliners are intercepted by combat aircraft. Dozens of times every year around the world, such incidents are caused rather by accident than by design, and they end peacefully. However, sometimes things go wrong – and when they go wrong, they usually end with catastrophic results. The shoot-downs such as those of the Korean Airlines Boeing 747 by a Sukhoi Su-15 interceptor of the Soviet Air Defence Force near Sakhalin in September 1983; of an Airbus A.320 of Iran Air by the guided missile cruiser USS *Vincennes* (CG-49) in June 1988; or in one of the latest such cases, of a Boeing 777 of Malaysian Airlines by a Buk M2 SAM system (ASCC/NATO-codename 'SA-17 Grizzly') operated by Russian-supported separatists in eastern Ukraine, have provoked well-known international scandals. For different reasons, many other cases remain less well-known. This is true for the case that happened over a – literally – 'forgotten corner' of Angola at a time when hardly anybody was paying attention.

As described in volumes 3 and 4 of this mini-series, all through the 1980s, the FAPA/DAA had only very limited control of Angolan national airspace. Even at its best times – in 1987–88 – it lacked the means to cover large areas in the south-east of the country. Unsurprisingly, various unidentified aircraft violated the airspace over southern and eastern Angola almost at will. Certainly enough, some were innocent civilian aircraft, however, the majority of those underway over Cuando-Cubango Province were either South African military transports, or civilian transports of Western companies chartered by UNITA supporters to haul contraband to the insurgents in Jamba and Mavinga. Not only the authorities in Luanda, but every single MiG pilot of the DAA/FAR contingent and the FAPA/DAA, and all the crews of dozens of SAM sites around the country, were eager to catch and shoot down one of the intruders. Correspondingly, although now left with only 13,000 troops in the country (most of which were withdrawn to the Luanda area), as the fighting heated up again, the Cubans bolstered the RA/DAAS integrated air defence system through the deployment of their specialists, and their ground controllers were back to the task of guiding fighter-bomber pilots to the battlefield and back. Similarly, Cuban pilots assumed the quick alert reaction duties, and were repeatedly scrambled in MiG-23MLs, whenever any kind of suspicious flying activity was reported.

It was under these circumstances that in early August 1988 the President of the Republic of Botswana was about to pay a visit to Luanda. One of the pilots of the aircraft scheduled to fly him there was Arthur Ricketts, from Great Britain, who explained:

> I had been employed on the test programme for the British Aerospace BAe 125-800A-series of aircraft for the previous eight years. One of these (coded OK-1) was operated by the Botswana Defence Air Force Air Wing, and tasked to fly His Excellence J K Quett Masire, President of Botswana, and eight other government officials from Gaborone to Luanda. The aircraft was crewed by Colonel Albert Scheffers, Commander of the Air Wing, and me, employed as a transport and training captain with British Aerospace. Colonel Scheffers had completed his type conversion in the UK and I was continuing his line training in Botswana.

Alberto Olivares Horta next to one of the MiG-23MLs he flew in Angola in 1988–89. (via Luis Dominguez)

British Aerospace 125-800 demonstration and display pilot Arthur Ricketts had a wealth of experience flying in Africa, having previously flown Vickers VC.10s for East African Airways. When the pilot of OK-1, Albert Scheffers – one of Botswana's pioneer pilots – was incapacitated, it felt to co-pilot Ricketts to act quickly and decisively. (Arthur Ricketts Collection)

On 7 August 1988, OK-1 entered Angolan airspace while flying at 10,668m (35,000ft) along a commercial corridor connecting Mavinga with Luanda. Its flight was announced to air traffic control in Luanda – the same authority that also received a note from the FAPA/DAA, about closing of this commercial corridor for all traffic because of intensive combat operations in Kuito, Bié Province. A sizeable portion of the DAA/FAR contingent was still largely in Angola and in order to lessen the burden of their Angolan colleagues, the Cubans agreed to conduct quick reaction alert operations from all major air bases. This is how it came to be

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that they were also responsible for intercepts in reaction to all the airspace violations. Indeed, Lieutenant Eduardo González, then the Operations Commander of the sole remaining Cuban MiG-23 squadron in the country, and based at Menongue AB, recalled:

> It was during Operation Second Congress, in 1985, that we asked Air Traffic Control in Luanda to close this corridor for all commercial traffic, because it was going over a combat zone. We repeated such requests on a number of occasions and documents on this matter were signed, but to no avail.... Airlines continued to fly over what everybody in the area should have known was a war zone... Until today, I do not understand how any responsible airline could ever accept a flight plan that overflies a combat zone...

Concerned about the likelihood of causing a major embarrassment and diplomatic incident, González ordered his pilots to take the necessary precautions before opening fire:

> As the 'world's black sheep', we [Cubans] could not afford a similar mistake like what happened to Soviets and Americans before. That's why I instructed my pilots that before launching their missiles at any such target in daylight, they had to visually identify their target.... Despite all the calls to the ATC [air traffic control] in Luanda, twice a month and in broad daylight, I intercepted a huge McDonnell Douglas DC-10 from Mozambique, while it was underway somewhere over Mavinga and in direction of Luanda...

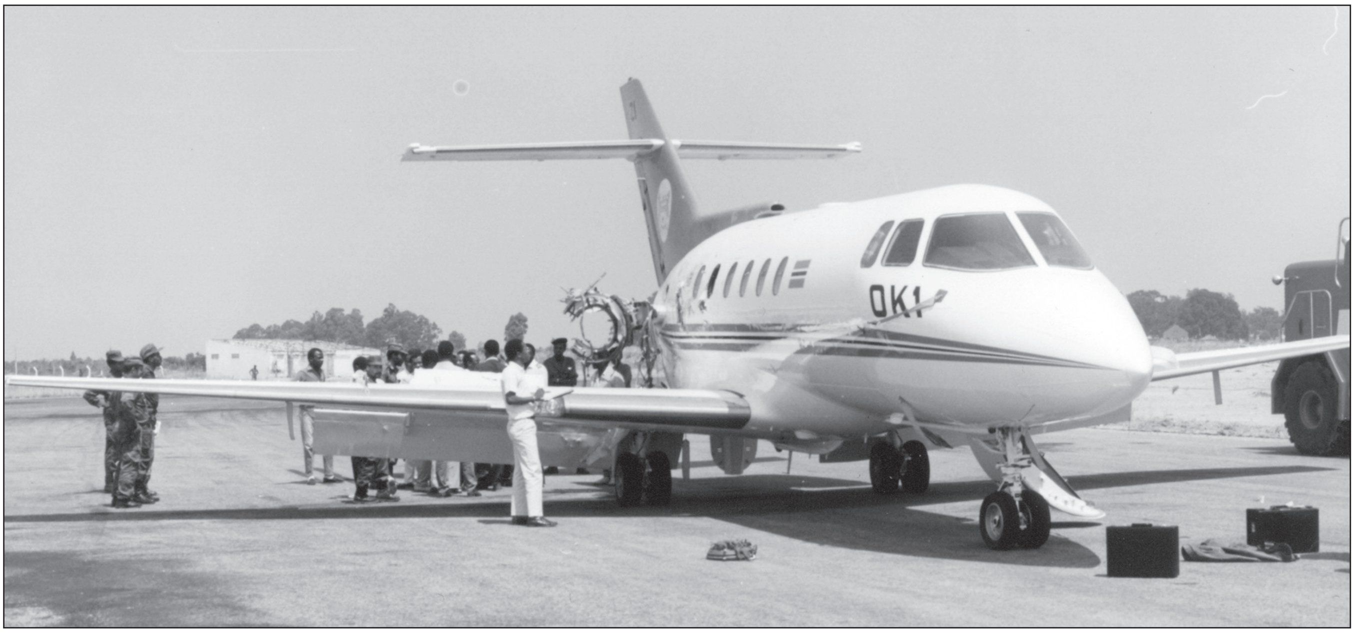
As the nocturnal intrusions of aircraft hauling support for UNITA intensified, and his pilots received the order to open fire without visually confirming identification of their targets, González's concerns grew ever more:

> I was terrified that if a passenger aircraft would enter that zone by night, my pilots and I could not establish a visual ID.... I was sure an incident involving a civilian airliner would happen sooner or later...

After the Luanda ATC ignored the RA/DAAS order to close the commercial corridor from Mavinga to Luanda, and then failed to announce the flight of the OK-1 to the military authorities, a serious incident was nearly inevitable. The aircraft approached Cuito Cuanavale from the south-east, emitting no IFF signals and not responding to radio calls. The command of the RA/DAAS thus ordered the aircraft to be shot down, as recalled by Gonzales:

> The aircraft in question first came under fire from an Angolan SAM site near Cuito Cuanavale, a part of their 24th BDAA. They were on full readiness and attempted to identify the 'bogie'. There was no friendly IFF response and a 'clear to fire' order was issued. They fired four (SA-3) missiles but all missed: they were out of tune with the fire-control radar...

At the time, there still were three Cuban air defence brigades deployed in Angola. One of them had tracked the incoming aircraft too, and – in an attempt to find out if any kind of a commercial flight had been announced – its commander cross-checked with the headquarters in Luanda, The answer was negative, but by that time the unknown aircraft was already north of Cuito Cuanavale. Therefore, two MiG-23MLs were scrambled from Menongue to intercept: one of them had to abort prior to take-off, because it developed a technical problem. The other, the MiG-23ML with



With just the skeletal remains of the mount for the starboard engine still attached, OK-1 was the subject of much discussion at Kuito in the aftermath of the incident. Although the aircraft looks otherwise 'intact', it was heavily damaged. (Arthur Ricketts Collection) serial number C479, was piloted by Captain Alberto Olivares Horta, who recalled:

> To catch the intruder, I accelerated to Mach 1.9, but never saw the target aircraft before opening fire... I fired two missiles: the first was an R-24T from the left-wing station No.3, launched from a range of 20km. This scored a hit, and that was when I sighted my target for the first time. Then I fired an R-24R from the right wing station No.4. To the luck of the crew and passengers, this missile went astray, and with the first one scoring a hit and me running out of fuel, I then disengaged...

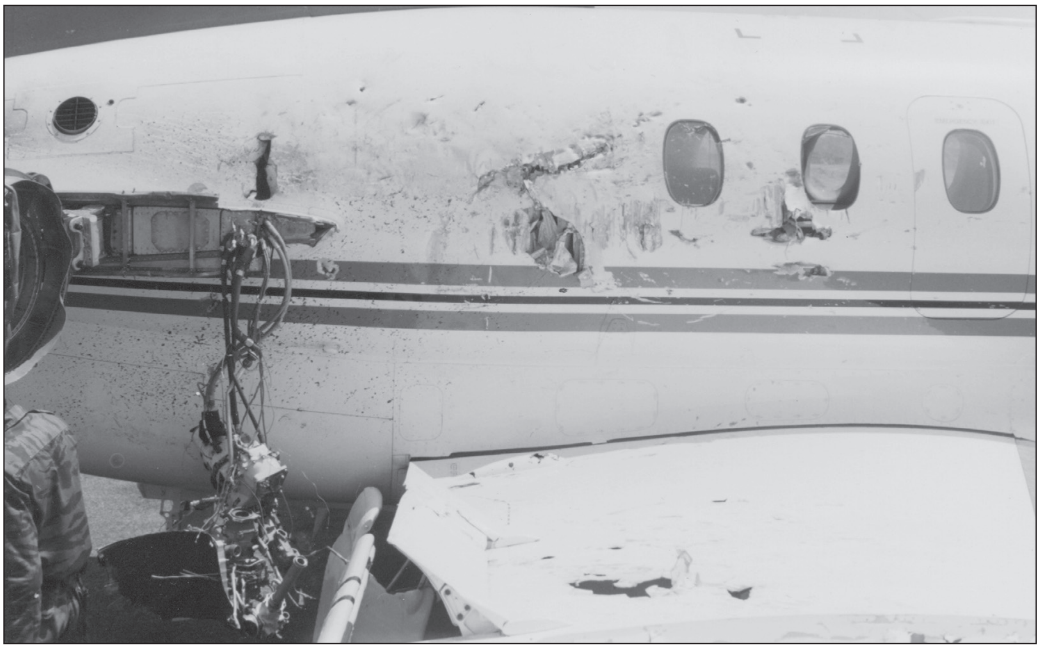
The impact of the first missile blew the starboard engine clean off the business jet. Arthur Ricketts recalled the drama that unfolded on board the badly damaged OK-1 during the following seconds:

> At the point of impact Colonel Scheffers was rendered incapacitated by the instantaneous application of approximately 33g (calculated by the BAe stress engineers later on, based on damage to the fuselage frames), which threw him hard against the port cockpit wall, and he played no further part in the recovery of the aircraft. Also at this time the engineer travelling with us was thrown into the cockpit from the cabin. The aircraft sustained damage to the pressure cabin that resulted in an explosive decompression. At least one window was shattered by shrapnel from the engine, approximately a ton and a half of fuel was lost from the damaged starboard wing tanks, all radio navigation systems failed, and the cabin oxygen masks failed to deploy automatically.
>
> My first instinct was to regain control of the aircraft by rolling it away from the vertical and establishing a stable descent, which I achieved by the time we reached FL 280 [8,534m]. Initially we were descending at about 6,000ft [1,829m] a minute, which gave me almost six minutes to sort everything out before arriving very hard in Africa! In that six minutes I managed to transmit two Mayday calls, one to Luanda, which was apparently not received or understood, and the other on HF radio which was picked up and acted upon by Santa Maria in the Azores.
>
> I had substantial previous experience of flying in Africa and assessed that there was probably an airstrip of sorts at Cuito Bié, some 25 miles [40km] behind the point at which we were hit. During the descent I had assessed the aircraft systems remaining and had made the decision to leave selecting flaps and landing gear until shortly before landing, not expecting them to work. However, when the engine departed the airframe, the quick release couplings on the hydraulic pump, starter/generator and alternator did their job and I was able to have the use of flaps, undercarriage and brakes, certainly necessary as the damage demanded a landing speed of approximately 150–160kt.

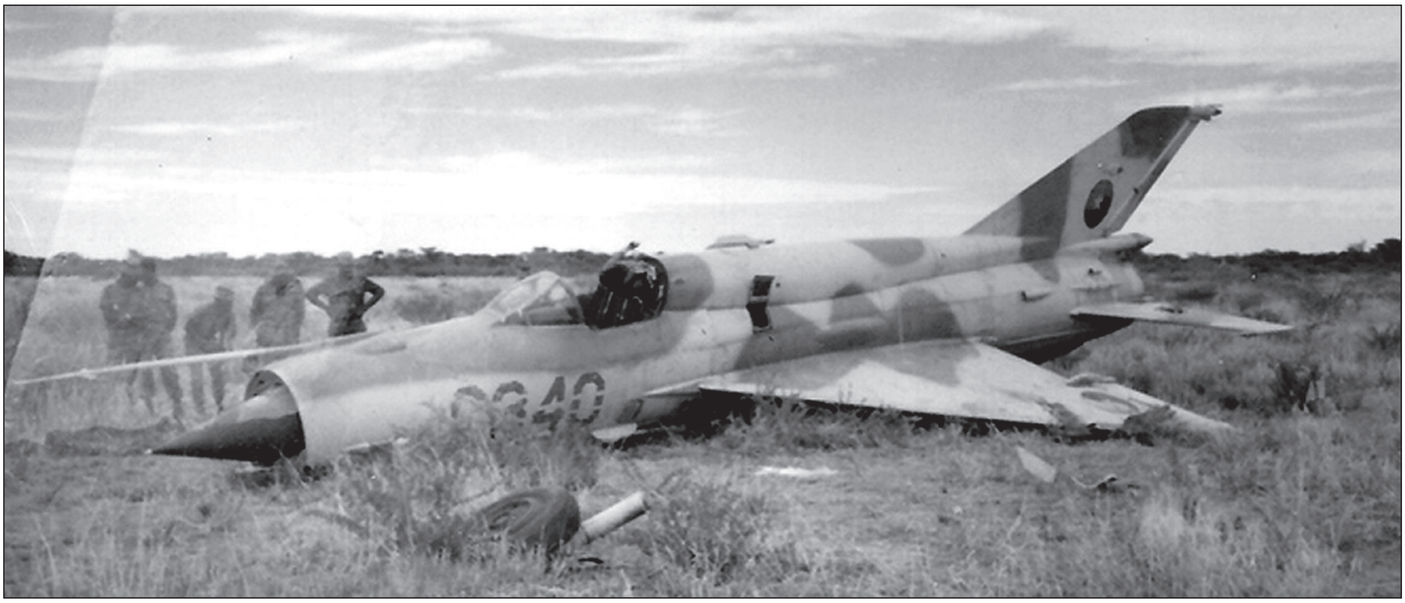
Considering the severity of the damage, it was almost a miracle that OK-1 remained intact, enabling Arthur Ricketts to land it safely. Subsequent investigation of the aircraft revealed that the entire cabin of was knocked out of its fasteners and inclined 15 percent compared to the fuselage. A number of passengers suffered serious injuries, as Ricketts recalled:

> Injured passengers were attended to at the hospital in Kuito Bié, before we were eventually uplifted to Luanda. President Masire was injured by a fan blade that penetrated the cabin and then hit seat back. He was subsequently flown to England by the RAF for treatment.

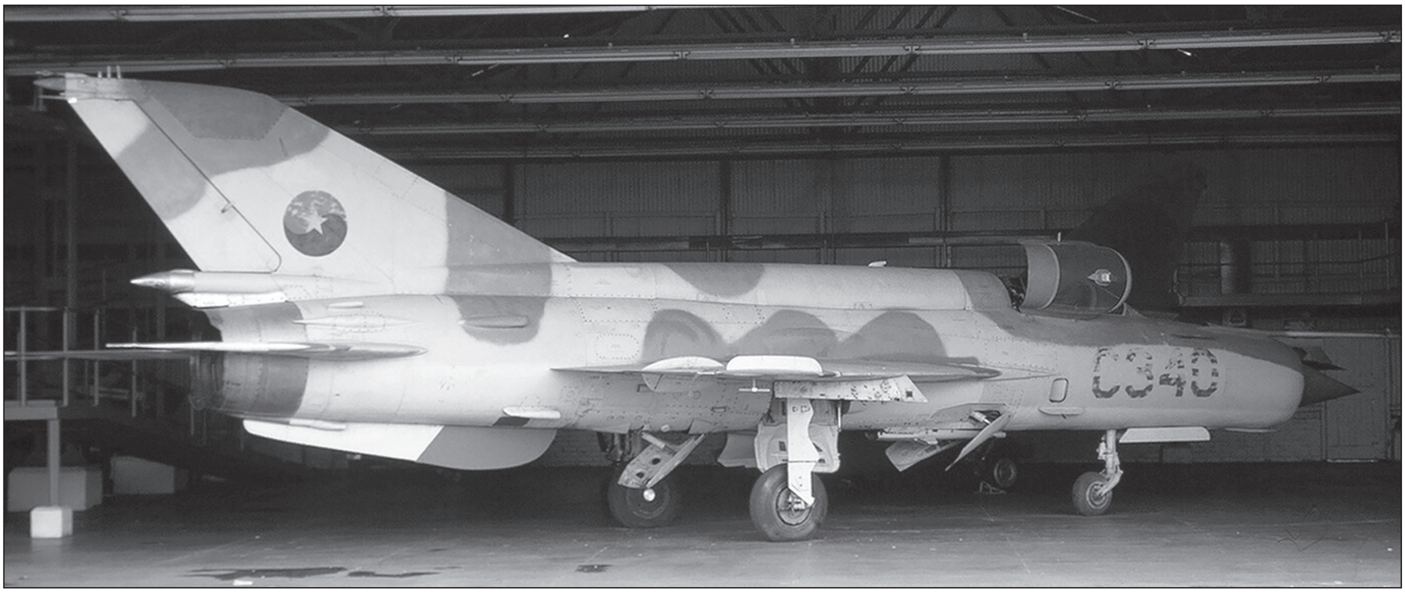
González and Horta returned to Cuba without further incident and served with the DAA/FAR until the end of their flying careers. Arthur Ricketts was eventually awarded the Diploma of Outstanding Airmanship in 1989 by the Fédération Aéronautique Internationale – an honour awarded only once a year. He still holds a valid ATPL at the age of 75.



AA close-up view of the right rear fuselage of OK-1, showing the starter/alternator hanging at the end of cables after the landing. Eventually, the aircraft was completely rebuilt and sold to a new owner in Brazil, with the registration PT-OBT, and then to a company in Georgia, USA, as N812GJ. (Arthur Ricketts Collection)



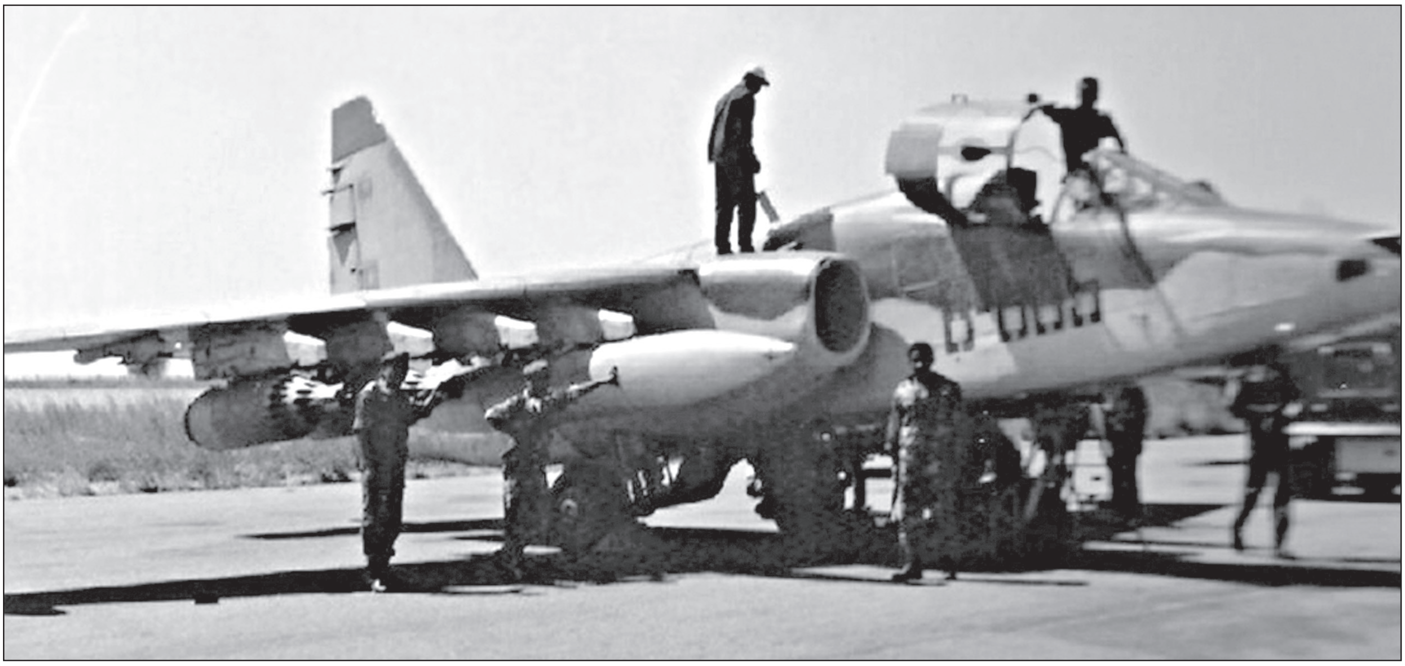
A front-quarter-view of MiG-21bis serial number C340, landed by Lieutenant Vinez in Angola. Notable are details of the so-called 'horns' camouflage, applied as standard on the mass of MiG-21bis of the FAPA/DAA in the 1980s. (Albert Grandolini Collection)



A starboard view of MiG-21bis C340 at the SAAF Museum in Swarktop, seen during repairs pending being put on display in 1991. Curiously enough, Luanda never demanded the return of this jet: South African government returned it to Angola on 17 September 2017. Contrary to widespread belief, Vinez never intended to defect, but was on a secret mission to test South African reactions. (Pit Weinert Collection)

brigade – between 10,000 and 12,000 troops in total – advanced south-east of Cuito Cuanavale. Moving much quicker than ever before, on 22 December, they constructed a pontoon bridge on the Chambinga River before streaming along three prongs in a south-eastern direction. Surprised by the ferocity and speed of the onslaught and lacking the support of South African air power and artillery, FALA scrambled to deploy whatever forces it could – including its sole mechanised battalion equipped with captured T-34/85s and T-54/55s, and the bulk of its artillery – along a defence line between the River Cunzambia and the village of Cunjamba. Subjected to relentless air strikes and severe artillery barrages, it managed to slow down the FAPLA advance for a few days. However, the rainy season of 1989–90 was unexpectedly dry: eventually, one of the Angolan brigades crossed the Cunzumbia and drove – supported by Su-25s of the 26th RACB – into the rear of the insurgent deployment, causing the entire defence line to collapse on 2 January 1990. However, when running into insurgent minefields and positions protecting Mavinga, government losses in troops and vehicles began to mount. Eventually, supported by about 30 ground attacks by MiGs and Sukhois, FAPLA mechanised formations breached the enemy defences and captured Mavinga and the adjacent airstrip only after a protracted and bitter battle on 2 February 1990. However, by then the troops were completely exhausted and in need of supplies and reinforcements, while many of their vehicles needed repairs.[16]

Through February, FAPA/DAA rushed to support its troops by maintaining an air bridge to Mavinga, while FALA brought in ever more units to interdict the flow of supplies along the road from Cuito Cuanavale. The battle for Mavinga thus ended in a stalemate, with exhausted government troops in control of the place, but unable to continue the advance, and the insurgency unable to force FAPLA out of Mavinga but keeping a large concentration of its troops effectively besieged through continuous pressure upon supply convoys travelling down from Cuito. The primary difference between the two parties was the FAPA/DAA, whose fighter-bombers – forward deployed in Cuito Cuanavale – proved capable of quickly reacting to any attacks and causing additional losses to insurgents whenever they exposed themselves, while transport aircraft kept



In early 1990, Angolan Su-25s flew their first combat sorties during Operation Final Assault: contrary to Russian claims that they were deployed as 'bombers' – and supposedly releasing their bombs from high altitude – all the available photographs show them equipped with weapons deployable from low altitudes only: this example (serial number B605) is seen armed with UB-32-57 pods for unguided rockets, for example. (Albert Grandolini Collection)

the garrison in Mavinga supplied with at least a bare minimum of ammunition, water, fuel and food necessary to keep the enemy at bay. The success of the air force came at some price, even if the full extent remains obscure. What is known is that one CASA C.212-200 light transport was shot down by UNITA sometime during February 1990, after deploying a platoon of special forces operators to the Jamba area. The crew managed an emergency landing in the bush and was captured. Another (serial number T-410) was felled on 27 March 1990, but not in relation to the battle in the south-east: it was transferring military personnel from Kuito to Huambo. All 25 of the crew and passengers perished.[17]

Savimbi's Revenge

Savimbi was wounded in the fighting of early 1990, but recovered and travelled to the USA to rally more support: indeed, both the Bush administration and private sources provided him with enough funding and arms to enable UNITA to survive even once Washington stopped providing aid. Nevertheless, once back in Angola, he realised that FALA could not dislodge FAPLA entrenched in Mavinga. Therefore, Savimbi decided to hit where it hurts: instead of continuing to redeploy FALA units from Bié and Moxico provinces to southern Cuando-Cubango, in February 1990, he ordered two regular battalions to attack the infrastructure in the Luanda area. FAPLA, which had its best units deployed for the defence of the Benguela Railway, and in Mavinga, proved unable to withstand this operation: the area and the number of installations it had to protect were much too large, the local garrisons were too few and much too weak to resist. Unsurprisingly, although operating deep within the traditional stronghold of the MPLA the insurgents even managed to cause a major blackout in Luanda.[18]

Indeed, instead of withdrawing immediately after, as usual, FALA was quick to realise that FAPLA was overstretched and unable to react. Thus, the insurgents began establishing themselves in control over large parts of northern Angola – from the outskirts of Luanda all the way to the borders with Zaire and Zambia. This included the oilfields of Ambriz in the north, the town of Luena in the east, and even Cahama in the south. The MPLA and FAPLA reacted the only way they could: on 7 May 1990, the Mavinga garrison was ordered to withdraw to Cuito Cuanavale. Lacking fuel and spares for its heavy vehicles, it abandoned a large number of them: worse yet, under constant harassment by the insurgents, the withdrawal gradually turned into a rout which made it certain that the government would never launch an operation on Mavinga and Jamba again.

The last withdrawing units reached Cuito Cuanavale on 15 May 1990. Once there, they were promptly reorganised, and then redeployed in attempts to recover Uige and Zaire provinces. The FAPLA/DAA not only supported this effort with its transports and helicopters but redeployed most of its combat aircraft to air bases at Luanda, Negage and Soyo, and then sent them on dozens of air strikes. However, all measures proved too little, too late: not only was the local terrain ill-suited for operations by the mechanised tactical groups, but losses during Operation Final Assault, FALA's offensive in the north, and the massive plight of civilians suffering from famine caused by the drought of 1990, caused a wave of defections that reduced the regular Angolan army to fewer than 50 operational brigades, while swelling the ranks of the insurgency. Certainly enough, MPLA was still in control of over two thirds of the country – including its most important urban and economic centres – and the insurgency still had too few troops to effectively exercise control over the areas it claimed. However, when the reorganised FAPLA deployed one of its task groups to attack from Viana on Uige, it only managed to drive out the enemy, not to destroy it. An even larger counteroffensive – initiated in July, including two additional task groups, and supported by dozens of air strikes by all available MiG-21s, MiG-23s, Su-22s, Su-25s, Mi-8s, Mi-25s and Mi-35s, and PC-7s – only managed to temporarily secure the Macocola-Sanza Pombo corridor, before the army was forced to withdraw for rest and resupply. By that time, desertions had reached rampant proportions, with many brigades being down to fewer than 300 troops. Ultimately, Luanda was forced to regroup what was left of its ground forces into the Cuanza-Bengo Front. This

The withdrawal of the FAPLA garrison from Mavinga, and the subsequent wholesale redeployment of the army and air force from southern to northern Angola, required the involvement of all the available aircraft and personnel – including this An-12 of the FAPA/DAA, photographed while rolling down the tarmac of Luanda IAP. (Chris Mak Collection)

Another type to see intensive action through 1990–91 was the PC-7 light striker, some 26 of which are known to have been acquired by the time. Exposure to the elements had nearly washed out the camouflage pattern of this example, but intensive flying added a thick trail of exhaust down the fuselage. (Albert Grandolini Collection)

protected Luanda, Bengo, Cuanza Norte and Cuanza Sul provinces, major urban centres and ports along the coast.

The End

By September 1990, both sides were exhausted to the degree where no additional major operations were initiated before FAPLA deployed a powerful group of mechanised units to drive FALA out of the Luena area and attack Munhango in April 1991. Moreover, because of the dissolution of the USSR and resulting chaos, the FAPA/DAA began experiencing massive problems with acquisition of spares. Once the six-month guarantee for its Su-25s expired, the Soviets withdrew their support team, while Moscow proved unwilling or unable to continue selling spares for aircraft originally manufactured in Tbilisi, which was now in the independent Republic of Georgia. As a result, the fleet – depleted to eight aircraft – was grounded, and the 26th RACB continued flying Su-22s, for which spares were acquired from other sources around the world.

In turn, FALA recovered to the degree where it found it easy to disrupt the logistical build-up of the enemy – already troubled by widespread corruption within the army – but, then made a major mistake by assaulting Lena. The fighting for this town was intense, but FAPLA put up skilful defence. Exposed to sustained air strikes and heavy artillery barrages while trying to advance, the insurgency managed to enforce the closure of the local airport — claiming the destruction of 'four MiG-23s' in the process, although all had been withdrawn – and forced the Angolan ground forces to rely on overland resupply from Saurimo. It was in the Luena area that the FAPA/DAA suffered its final confirmed loss of this conflict when, on 1 April 1991, one of its MiG-23MLs was shot down, and its pilot – Captain Miguel Felix – killed. Nevertheless, the air force kept the insurgency under immense pressure: indeed, constant air strikes by MiG-23s and Su-22s, enabled the army to bring in several supply convoys in May 1991. Bolstered by the fact that the local population openly sided with the armed forces, the MPLA retained control of the ruined town.[19]

By that point in time, both the government of President dos Santos and Savimbi's UNITA were forced to recognise that they could not impose a military solution. Indeed, even the uncompromising guerrilla leader had to accept the fact that FALA could not risk another battle (nor similar losses) of the same magnitude as that for Mavinga. Eventually, this brought both sides back to the negotiating table: the FAPLA's defensive success in Luena was thus followed by an offer of a ceasefire, which Savimbi accepted on 15 May 1991. To a certain degree, his decision was influenced by the Third Congress

The ceasefire of 15 May 1991 ended a period of some of the most intensive combat and combat support operations by the FAPA/DAA. These two Su-22M-4s were photographed while undergoing maintenance at Catumbela Air Base. (Albert Grandolini Collection)

of the MPLA in December 1990, when dos Santos' party decided to abandon the Marxist ideology and declared 'social democracy' as its new platform. Certainly enough, the quality of that step left much to be debated. However, by May 1991, the last Cuban troops were out of the country, and the parliament in Luanda declared Angola a democracy with a multi-party system: correspondingly, UNITA had no reason to continue a war it could not win. On 31 May 1991, dos Santos and Savimbi signed the Bicesse Peace Accords in Portugal. Although entirely failing to effect a reconciliation and ultimately flawed, the treaty marked the end of the war that was fought since 1975, killed over 335,000, maimed up to 500,000, and made over 600,000 Angolans into homeless refugees.[20]

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NOTES

Introduction

1 CIA, *Angola, Struggling with Declining Export Earnings*, CIA Freedom of Information Act Electronic Reading Room (henceforth 'CIA/FOIA/ERR')

Chapter 1

1 Scholz (2013); pp. 279–283.

2 Shubin (2011), pp. 51, 69; Shubin (2014), pp. 72, 99–101; De Vries, pp. 419–421; Nortje (2012), pp. 1010–1012; Bridgland (2017), pp. 206–207, 212, 247–249; Scholz (2013), p. 290; Gleijeses (2013), p. 399; Shubin (2011), pp. 51, 69. Notably, South African sources all mention the 25th BrI as deployed south of the Chambinga, while a Soviet advisor confirmed that the 25th BrI was there, but without specifying if it was the entire brigade or not. Interestingly, the latter source also mentioned a combined sweep of the 21st BrI and the 59th BrIM, but dated it as 2 November, not the 1st, and did not report any kind of engagements with South Africans: only the 'usual skirmishes with FALA elements'.

3 Glõria Ramos et al, p. 215.

4 On their delivery, both Mirage F.1AZs and F.1CZs of the SAAF were equipped with the French-made Thomson-CSF BF1 radar warning receiver. These proved obsolescent and were replaced by more advanced RWS/CRWS systems, starting from late 1985. However, by late 1987, only one Mirage F.1CZ had received the new system. Similarly, as of November 1987, the SAAF had only six Elettronica ELT-555 active radar jamming pods on hand, which were of high importance for operations in high-threat areas (like those protected by Soviet-made SA-3, SA-6, and SA-8 systems, see below for details). Initially, these were used by Buccaneers only: Mirage F.1AZs carrying them were observed only starting in 1988.

5 Rojas Garcia (2019), pp. 74–76.

6 Glõria Ramos et al, p. 215.

7 Abrantes, p. 108. Indeed, according to Abrantes (p. 109), the 17th RAH was large enough to, on 30 July 1988, split some of its crews and helicopters to create the 164th Independent Helicopter Squadron in Soyo (Zaire Province, in north-western Angola).

8 Rojas Garcia (2019), pp. 26–29.

9 Catumbela served as CO 17th RAH in 1985–1986, and again from 1987 to 1989. In between, Captain Pascal Miguel 'Zombo Dio' commanded this unit in 1986–1987.

10 Mannal, p. 227.

11 Mannal, pp. 241–243.

12 Abrantes, p. 285.

13 Gleijeses (2013), p. 397; Trujillo Hernández, p. 114, 124; Del Pino (2013), pp. 322, 329; Mannall, pp. 227, 231, 236, 241, 246.

14 Unless stated otherwise, based on Rojas Garcia (2019), pp. 56–81.

15 In comparison, Riva (p. 190), stated that Rojas Garcia and Quesada Aquilar 'must have thought they could not be rescued' and thus decided not to switch their Komar radio on, or that they did not switch it on to avoid detection by UNITA.

16 Lord (2008), pp. 407–412.

17 Scholz (2013), pp. 284–288; Nortje (2012), p. 1012; Willsworth, p. 289; Shubin (2011), p. 51.

18 Reconstructed on basis of Scholtz (2013), pp. 264–266; Bridgland (2017), p. 93; Wilsworth, pp. 264–264, 270; Mannall, p. 154; Nortje (2012), p. 993; de Vries, p. 561.

19 Somewhat ironically, drawn by Roland de Vries, this plan was inspired by manoeuvring of the *Deutsches Afrika Korps* during the Battle of Gazala, in May and June 1942.

20 Shubin (2014), pp. 102–103.

21 Scholz (2013), pp. 289–297; Bridgland (2017), pp. 227–235; Nortje (2012), pp. 1013–1014; De Vries, pp. 424–426; Shubin (2011I), pp. 54–56, and Shubin (2014), pp. 102–106.

22 Scholz (2013), pp. 299–301; Bridgland (2017), pp. 236–242; De Vries, pp. 428–430; Nortje (2012), pp. 1015–1018; De Vries et al (2017), pp. 33–35.

23 Notably, it is the South African sources that mention a single battalion from the 25th BrI as reinforcing the 21st BrI. However, Igor Anatoliyevich Zhdarkin (in Shubin, 2011, pp. 66–75), who served with the 21st BrI, reported the presence of the entire 25th BrI, but no battalion from the 21st. Therefore, it is possible that the following operation included either the 21st BrI or the 25th BrI.

24 Shubin (2011), pp. 68–70.

25 Bridgland (2017), pp. 249–259; Scholz (2013), pp. 302–304; De Vries, pp. 431–432; Shubin (2011), pp. 68–71.

26 Bridgland (2017), pp. 259–262; Scholz (2013), pp. 303–304; Nortje (2012), pp. 1019–1020; De Vries, pp. 433–434; Shubin (2011), pp. 74–76.

27 Glõria Ramos et al (2017), p. 243 & González, p. 165.

28 Bridgland (2017), pp. 252, 269–273; Scholz (2013), pp. 306–309; De Vries, pp. 440–441; Mannall, p. 234.

Chapter 2

1 Bridgland (2017), p. 196; De Vries et al, pp. 316, 318, 333; Oosthuizen (2014), p. 100.

2 Piero Gleijeses, 'Moscow's Proxy? Cuba and Africa, 1975–1988', *Journal of Cold War Studies*, Vol. 8, No. 4, 2006, pp. 98–146.

3 Gleijeses (2013), pp. 406–407, 409; Villegas, pp. 70–72.

4 Piero Gleijeses, 'Moscow's Proxy? Cuba and Africa, 1975–1988', *Journal of Cold War Studies*, Vol. 8, No. 4, 2006, pp. 98–146 & Riva, p. 225.

5 Gleijeses (2013), p. 407.

6 Shubin (2011), p. 156.

7 Shubin (2014), p. 131.

8 Gleijeses (2013), pp. 409–410; Pérez Cabrera, p. 411; Jiménez Gómez, pp. 24, 32–33, 69–73, 93, 103, 128, 150, 159, 185, 209–213; Colonel Pedro I Sautjé Mohedan, 'Cuito Cuanavale y el principio del fin del apartheid', Verde Olivo, October 2015. Notably, according to Gleijeses (2013; p. 405), and Jiménez Gómez (pp. 21, 24), preparations for deployment of the Coheril Air Defence Brigade began in August 1987. Furthermore, Finally, Jiménez Gómez mentioned much higher figures for the troop strength of this operation: according to him (pp. 212–213), 9,000 additional Cuban troops have reached Angola by early March 1988, and these were followed by another 6,000.

9 Jiménez Gómez, pp. 21, 24, 47, 52, 54, 98, 100, 159, 213, 340–341, 381.

10 Jiménez Gómez, pp. 21, 24, 47, 52, 54, 98, 100, 159, 213, 340–341–381 & Glõria Ramos, p. 124. According to the latter, and rather ironically, one of the priorities of the FAPA/DAA in 1987 was working up the 190th BDAA. This unit was specially created to protect the oil facilities in the Soyo area. Although consisting of 127 officers, 117 non-commissioned officers and 620 troops organised into two batteries operating SA-3s and one of SA-2s, the unit was so short on experienced personnel, that it was commanded by 2nd Lieutenant António Matos Ndombele.

11 Other sources mention General da Brigada Rubén Martinez Puente as the CO of the DAA/FAR contingent in Angola in 1987–1989. It is possible that he assumed the command sometime during early 1988.

12 Shubin (2014), pp. 178–179.

13 Georg, p. 210; Gleijeses (2013), pp. 407–408, 423; Pérez Cabrera, pp. 443–444; Jiménez Gómez, pp. 45, 99, 128; Colonel Pedro I Sautjé Mohedan, 'Cuito Cuanavale y el principio del fin del apartheid', Verde Olivo, October 2015. Notably, Ochoa was subsequently arrested, prosecuted in a 'Stalinist-style' process, and executed. Havana then published many testimonies accusing him of, amongst others, incompetence as the head of the MMCA. Therefore, it is difficult to assess objectively the nature of his disagreements with Castro.

14 Nujoma, p. 373.

Chapter 3

1 Trujillo Hernández (2012), pp. 377–378.

2 Trujillo Hernández (2012), and Heitman (1990), p. 180.

3 Trujillo Hernández (2005), p. 132; Trujillo Hernández (2012), pp. 381–382, 385, 389–406; Lord (2008), pp. 433–434; CIA, *Cuban Chronology*, CIA/FOIA/ERR.

4 Glõria Ramos et al., p. 244 & Hernández (2012), pp. 385–387, 403–406.

5 Bridgland (2017), pp. 281–288, 333–334; Nortje (2012), pp. 1029–1030, 1035; Wilsworth, pp. 323, 328, 332–333; Scholz (2013), p. 336.

6 Shubin (2014), p. 163.

7 Trujillo Hernández (2005), p. 213.

8 Trujillo Hernández (2005), pp. 202–209; Jiménez Gómez, p. 209; Bridgland (2017), pp. 337, 339; Lord (2008), pp. 438–439. The SAAF correctly concluded that the loss of Major Every's Mirage was caused by bad planning and a deviation from standard operating procedure – foremost because the same route was used for repeated attacks, thus becoming very predictable. Moreover, the Mirage pilot became distracted after warning his wingman of one missile just as the two jets were recovering from attack and thus did not manoeuvre optimally enough to avoid. Finally, Every and his wingman did not manage to re-establish mutual support after their attack runs, and the downed pilot was still in the wingman's blind zone when attacked by the MANPADs. The wingman did attempt to warn him a split second before the missile hit, but by then it was too late. That said, the SAAF incorrectly credited this kill to SA-13s (for details, see Saab Group Presentation, p. 40).

9 Bridgland (2017), p. 339; Wilsworth, p. 333; Nortje (2012), p. 1038; Pérez Cabrera, p. 449; Jiménez Gómez, pp. 132–134.

Chapter 4

1 Bridgland (2017), p. 300; Pérez Cabrera, p. 445.

2 Bridgland (2017), pp. 297–298.

3 Bridgland (2017), pp. 297–298, 300–306; Scholz (2013), p. 320.

4 Jiménez Gómez, pp. 110–111.

5 Scholz (2013), p. 324.

6 'The unforgettable Flight of Juan Francisco Alfonso', granma.cu

7 'The unforgettable Flight of Juan Francisco Alfonso', granma.cu, and González, p. 165. Cuban sources are unclear in regards of whether Duval's jet was subsequently recovered and repaired or destroyed where it landed.

8 Bridgland (2017), pp. 307–311; Scholz (2013), pp. 320–326; Pérez Cabrera, pp. 448–449; Trujillo Hernández, pp. 142–143; Jiménez Gómez, p. 128.

9 Riva, p. 225; Blanch, 'The Cubans in Angola, 1976–1990', in *A Far-Away War: Angola, 1975–1989*, Jorge Ian Risquet and Vladimir Shubin (2015), p. 61; Jiménez Gómez, pp. 128–132.

10 Bridgland (2017), p. 311; Pérez Cabrera, p. 449; Jiménez Gómez, pp. 128, 130–135; Gleijeses (2013), p. 423. Apparently, the SADF concluded that the enemy would be more exposed if left to regain its positions from before 13 January. Of course, troops involved in that assault felt that their entire effort was for nothing.

11 Scholz (2013), p. 326. When studying related explanations by Castro, it should be kept in mind that it was exactly at this point in time that he sacked Ochoa amid allegations of drug trafficking, incompetence, defeatism and others. Indeed, according to Castro, Ochoa flatly refused to obey his orders on '14 January', and this is what caused the defeat of the 21st BrI. It is certain that most of accusations were launched in order to undermine Ochoa's legitimacy as a military hero and expert tactician gained repeatedly since the times of the Ogaden War in Ethiopia of 1977–1978. Interestingly, early Cuban publications about the Battle of Cuito Cuanavale entirely ignored the battle of 13–14 February, and then moved re-dated it to 14 January. Then came Ochoa's trial when Castro appeared to explain that it was the General who failed to follow his orders from January to withdraw to the second line. Moreover, Castro stressed that Ochoa was a defeatist who wanted to withdraw all the way back to Menongue. For details, see Pérez Cabrera, p. 450; Scholz (2013), p. 326; and Georg, pp. 215–224.

12 Jiménez Gómez, pp. 159–163.

13 Shubin (2014), p. 177.

14 Bridgland (2017), pp. 322–324.

15 Scholz (2013), pp. 330–332; Bridgland (2017), pp. 201, 322–326; Pérez Cabrera, pp. 450–454; Shubin (2014), pp. 163, 177; Jiménez Gómez, pp. 179–180. Notably, Bridgland (in 2017, p. 326), mentioned four soldiers of the 4th SAI as killed by an air strike, in the late afternoon. This loss is not mentioned in any other of the available South African sources, though.

16 Bridgland (2017), p. 207; Nortje (2012), pp. 1031–1035; Lord (2008), p. 435; Del Pino (2013), p. 450.

17 Jiménez Gómez, pp. 190–191.

18 CIA, Cuban Chronology, CIA/FOIA/ERR. According to the same report, UNITA claimed to have killed 41 Angolan, and three Cuban troops on 21 February 1988.

19 Scholz (2013), p. 333.

20 Notably, some Angolan and Cuban sources still mention the 21st BrI as 'behind' Cuito Cuanavale, although this unit was withdrawn and thus absent according to most of the others.

21 Pérez Cabrera, pp. 455–457; Jiménez Gómez, pp. 182–186; Scholz (2013), p. 339; Bridgland (2017), p. 329; Shubin (2014), pp. 179, 181.

22 Shubin (2014), p. 160.

23 Scholz (2013), pp. 339–345; Bridgland (2017), pp. 346–360; Nortje (2012), pp. 1039–1044; Pérez Cabrera, pp. 455–457; Jiménez Gómez, p. 200.

24 Trujillo Hernández (2005), pp. 210–212.

25 González, interview, 02/2010; Trujillo Hernández (2005), p. 190–192; Trujillo Hernández (2012), pp. 379, 431–434; Lord (2008), pp. 425–426, 439–440.

26 Based on Campos et al.

27 Bridgland (2017), pp. 365–366; Abrantes, p. 238 & González, p. 165. Notably, González stated the date of Rodriguez Peréz's loss as 4 May 1988.

28 Scholz (2013), pp. 345–348; Bridgland (2017), pp. 364–367; Pérez Cabrera, p. 457.

29 Abrantes, p. 238.

30 Hernández (2021), pp. 443, 448–451; Georg, p. 232; Pérez Cabrera, p. 459; Jiménez Gómez, pp. 243, 246; Scholz (2013), pp. 350–351, Bridgland (2017), pp. 377–381.

31 Scholz (2013), pp. 352–354; Bridgland (2017), p. 380; Nortje (2012), pp. 1048–1049; Jiménez Gómez, p. 246.

32 Georg, p. 233; Scholz (2013), p. 354; Bridgland (2017), pp. 383–384.

33 Shubin (2014), pp. 181–183.

34 Scholz (2020), pp. 201–202.

35 Georg, p. 233; Scholz (2013), pp. 354–358i; Bridgland (2017), pp. 386–391; Shubin (2014), p. 183.

36 González, interview, 02/2010; Trujillo Hernández (2005), p. 277 & Trujillo Hernández (2012), p. 454. Notable amongst these figures is the high number of air-to-air missiles fired by Cuban MiG-23ML pilots. Here it is interesting that some of South African sources mention the deployment of more than 20 air-to-air missiles by SAAF aircraft in 1987–1988. Combined, this might be indicative of a large number of additional air combats, the mass of which remains entirely unknown at the present time. Notably, according to the CIA, Cuban Chronology, on 20 March 1988, the Cuban Ministry of Armed Forces reported that 39 Cuban soldiers had been killed or wounded 'in the past two months, while defending the Angolan town of Cuito Cuanavale'.

37 Muekalia (2013), pp. 225–229 & Szabo, pp. 37–54

38 For details, see Cooper et al, *Libyan Air Wars, Volume 3* and Fontenellaz et al, *Ethiopian-Eritrean Wars, Volume 2*.

Chapter 5

1 Riva, pp. 233–235.

2 Jiménez Gómez, p. 210.

3 Gleijeses (2013), p. 429.

4 Jiménez Gómez, p. 220–222.

5 Jiménez Gómez, p. 254.

6 Villegas, p. 105; Gleijeses (2013), pp. 428–429; Jiménez Gómez, pp. 217–245, 256, 258, 261, 266–269, 276, 288, 293, 304–306.

7 Jiménez Gómez, pp. 294–295. Notably, according to CIA (*Cuban Chronology*, CIA/FOIA/ERR), on 29 June 1988 – right after claiming

that ‘300 Cubans were killed in an attack on Caleque of 27 June’ – South African TV reported that the An-26 was ‘deliberately shot down because some of the officers on board were defecting to south Africa’. The same report also mentioned that on 1 May 1988, President dos Santos sent a telegram of condolence to Fidel Castro, following the death of 26 Cuban internationalists on 27 April.

8 Shubin (2011), p. 186.

9 Jiménez Gómez, p. 343.

10 Jiménez Gómez, pp. 242, 269, 280, 331, 343–345; Villegas, pp. 73, 105; Gleijeses (2013), pp. 428, 455; Georg, pp. 236–237; Campos Abrantes, p. 144.

11 Shubin (2011), pp. 153–154.

12 Bridgland (2017), p. 426; Gleijeses (2013), p. 429; Nortje (2012), p. 1057; De Vries (2016), pp. 458.

13 Nujoma, p. 367–369; Scholz (2013), p. 252; Hanlie Snyman Wroth and Gerry van Tonder, ‘North of the Red Line: Operation Firewood’, *Soldier of Fortune*, 3 February 2018.

14 Pérez Cabrera, pp. 467–468; Scholz (2013), p. 374; Bridgland (2017), pp. 406–407; Nortje (2012), pp. 1049, 1051, 1054; Georg, p. 237; Jiménez Gómez, pp. 283–284, 288, 303.

15 Jiménez Gómez, p. 309.

16 Pérez Cabrera, p. 468; De Vries (2016), p. 456; Scholz (2013), p. 375; Bridgland (2017), p. 407; Nortje (2012), p. 1054; Jiménez Gómez, pp. 305–308; ‘Lest we forget‘, warboks.co.za, 4 May 2019. Notably, Georg (p. 238) listed no fewer than 54 Cuban casualties – following the contemporary pattern of wildly overclaiming, faithfully pursued by both sides. For example, the FAR assessed having inflicted 20–30 casualties upon the SWATF. This is why it was important to control the battlefield after the end of fighting: the party in possession of it was able to collect trophies and photograph them, and thus claim victory.

17 Scholz (2013), pp. 374–375; Bridgland (2017), pp. 416–417; Nortje (2012), pp. 1062, 1064; Jiménez Gómez, pp. 326–328; Pérez Cabrera, pp. 471–473.

18 Jiménez Gómez, pp. 320–321, 326, 335.

19 Jiménez Gómez, pp. 335–337; Glõria Ramos, p. 166; Abrantes, p. 248.

20 De Vries (2016), pp. 460–467; Scholz (2013), pp. 377–378; Bridgland (2017), pp. 422–424; Nortje (2012) pp. 1066–1068.

21 Pérez Cabrera, p. 475; Jiménez Gómez, pp. 358, 360, 365.

22 Jiménez Gómez, pp. 349–350.

23 Jiménez Gómez, p. 360–363.

24 Jiménez Gómez, p. 366.

25 Jiménez Gómez, pp. 367–370, 374–375; Pérez Cabrera, p. 476; De Vries (2016), p. 457); Scholz (2013), p. 377; Nortje (2012), p. 1069; Abrantes, p. 248.

26 Jiménez Gómez, p. 381.

27 Pérez Cabrera, pp. 477–478; De Vries (2016), pp. 469–470; Scholz (2013), p. 378; Bridgland (2017), pp. 425–427; Jiménez Gómez, p. 385–388.

28 Jiménez Gómez, pp. 391–392.

29 Nortje (2012), pp. 1072–1073.

30 Pérez Cabrera, pp. 477–478; De Vries (2016), pp. 469–470; Scholz (2013) pp. 378–380; Bridgland (2017), pp. 425–431; Nortje (2012), pp. 1072–1073; Jiménez Gómez, pp. 385–396. Of course, both sides subsequently published wildly exaggerated claims of enemy casualties. For example, the Cubans claimed to have destroyed four Ratels, damaged and captured another one, and to have killed between 20 and 30 enemy troops. The South Africans claimed the destruction of two tanks, two BTR-60s, and eight trucks, and that their enemy lost 302 killed in action on 26–27 June 1988.

31 Unless stated otherwise, based on González, interview, 02/2010; Trujillo Hernández (2005), p. 95, 98–100; Trujillo Hernández (2012), pp. 473–475; Heitman (1990), p. 306; Steenkamp (2016), pp. 286–288.

32 Trujillo Hernández (2005), pp. 231–232. The same author added that during its reconnaissance mission, this MiG-23UB also overflew the Ruacaná forward operating base of the SADF, photographing two Douglas DC-3 transports, and a Learjet.

33 Unless stated otherwise, based on González, interview, 02/2010 & Jiménez Gómez, pp. 21, 24, 47, 52, 54, 98, 100, 159, 213, 340–341, 381, 371–372, 417.

Chapter 6

1 CIA, *Cuban Chronology*, CIA/FOIA/ERR; De Vries et al (2017), pp. 20, 38; De Vries (2016), pp. 471–475.

2 Turner, p. 118; *Angola, A Country Study*, p. 226–228.

3 Reported as included in the batch of MiG-23MLs Angola donated to Cuba may have been aircraft with serial numbers C423, C432, C440, C441, C442, C443, and C445. However, serial number C442 is known to have been shot down in early 1988, while the serial number C441 was originally abandoned under unknown circumstances at Cuito Cuanavale AB, and subsequently became a part of a display at the local museum.

4 Glõria Ramos, pp. 151.

5 Glõria Ramos, pp. 119, 141; Abrantes, p. 203

6 *Angola, A Country Study*, p. 151; Abrantes, p. 109.

7 *Angola, A Country Study*, p. 220.

8 Catumbela served as CO 17th RAH in 1985–86 and again from 1987–89. In between, Captain Pascal Miguel ‘Zombo Dio’ commanded this unit in 1986–87

9 Unless stated otherwise, this sub-chapter is based on *Angola, A Country Study*, p. 239–242; Defense Intelligence Agency Briefing, ‘The 1987–88 Combat in Southern Angola: Lessons Learned’; CIA, ‘US Sends new Arms to Rebels’, 13 February 1989, CIA/FOIA/ERR; Bellant, pp. 53–54; Paul Manafort, ‘How an American Lobbyist stoked War halfway across the World’, *The Masthead from the Atlantic*, 31 March 2022; David Rampe, ‘Bush pledges Angola Rebel Aid’, The New York Times, 12 January 1989; Jonas Savimbi, ‘The Coming Winds of Democracy in Angola’, *The Heritage Foundation*, 5 October 1989; Michael Johns, ‘With Freedom near in Angola, this is no Time to curtail UNITA Assistance’, *The Heritage Foundation*, 31 July 1990

10 ‘Angola: Luanda privée d’électricité par l’UNITA’, *Le Monde*, 10 February 1989.

11 *The Gbadolite Declaration on Angola*; Turner, pp. 118–119; Knudsen et al, ‘Peace Agreements’; Glõria Ramos, p. 136; Jonas Savimbi, ‘The Coming Winds of Democracy in Angola’, *The Heritage Foundation*, 5 October 1989; ‘L’Angola et l‘UNITA reprennent le dialogue‘, *Le Devoir*, 17 July 1989; ‘Angolan Rebels down Plane, kill 42’, *Globe and Mail*, 26 July 1989; ‘L’UNITA nie avoir abattu l’Antonov-26’, *Le Soleil*, 26 July 1989.

12 Abrantes, p. 181

13 Unless stated otherwise, based on interviews with González, 02/2010 and Ricketts, 11/2012. Additional details from *Angola, A Country Study*, p. xxvii & CIA, *Cuban Chronology*, CIA/FOIA/ERR.

14 González, interview, 02/2010; Turner,

15 Abrantes, p. 188, 192.

16 Turner, p. 119; S. Smith, ‘Angola: prise d’un bastion de l’unita’, *Liberation*, 5 February 1990.

17 Turner, p. 119; Glõria Ramos et al, p. 100.

18 Turner, p. 119; ‘Angola: Luanda privée d’électricité par l’UNITA’, *Le Monde*, 10 February 1989.

19 Turner, pp. 120–121; Glõria Ramos et al, p. 136.

20 Ferreira et al, pp. 251–255; Paul Manafort, ‘How an American Lobbyist stoked War halfway across the World’, *The Masthead from the Atlantic*, 31 March 2022; Knudsen et al, ‘Peace Agreements’

About the Authors

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Adrien Fontanellaz, from Switzerland, is a military history researcher and author. He developed a passion for military history at an early age and has progressively narrowed his studies to modern-day conflicts. He is a member of the Scientific Committee of the Pully-based Centre d'Histoire et de Prospective Militaires (Military History and Prospectives Centre), and regularly contributes for the Revue Militaire Suisse and various French military history magazines, and has published more than a dozen books in Helion's @War series.

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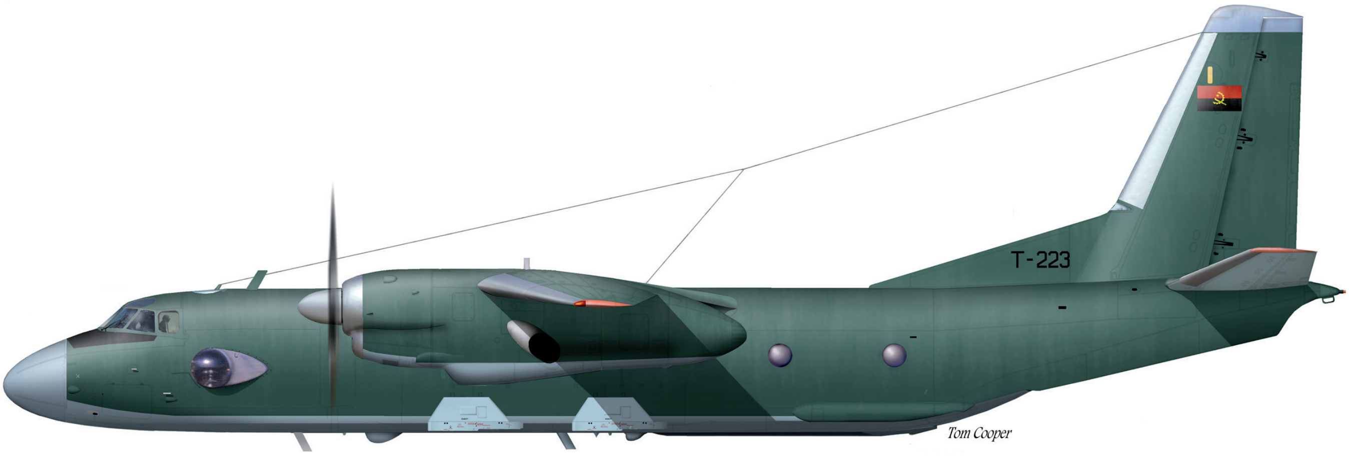
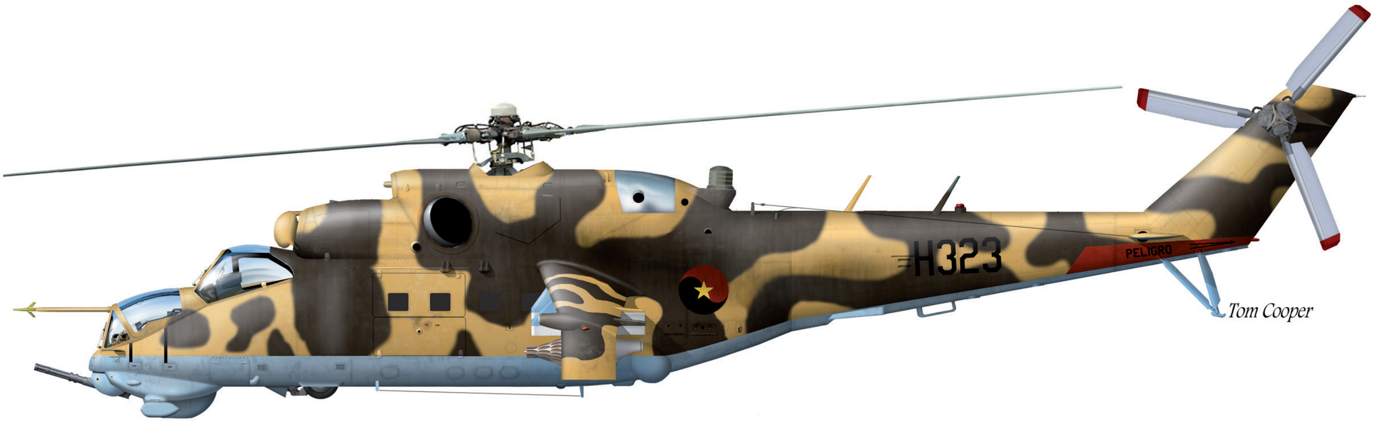
José Matos is an independent researcher in military history in Portugal with a primary interest in the operations of the Portuguese Air Force during the colonial wars in Africa, especially in Guinea. He is a regular contributor to numerous European magazines on military aviation and naval subjects and has collaborated in the major project 'The Air Force at the end of the Empire', published in Portugal in 2018. He has recently written two books in Portuguese on the former regime's relations with South Africa and on the Portuguese attack on Guinea-Conakry in 1970, another one about the Revolution in Portugal of 1974, and a number of books for Helion's @War series.

Tom Cooper

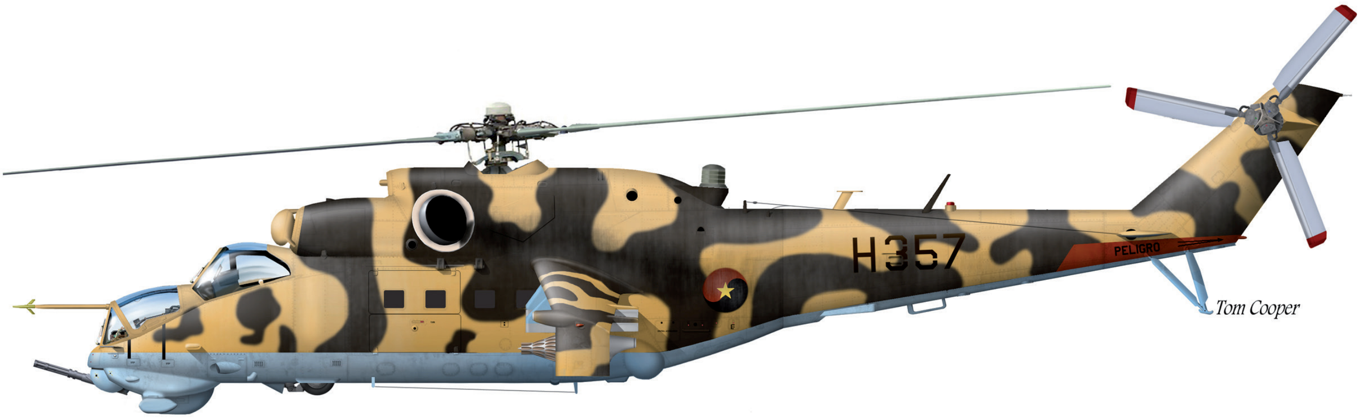
Tom Cooper is an Austrian aerial warfare analyst and historian. Following a career in the worldwide transportation business – during which he established a network of contacts in the Middle East and Africa – he moved into narrow-focus analysis and writing on small, little-known air forces and conflicts, about which he has collected extensive archives. This has resulted in specialisation in such Middle Eastern air forces as of those of Egypt, Iran, Iraq, and Syria, plus various African and Asian air forces. In addition to authoring and co-authoring about 50 books – including about three dozen titles for Helion's @War series – and well over 1,000 articles. Cooper is co-editor of the five @War series.



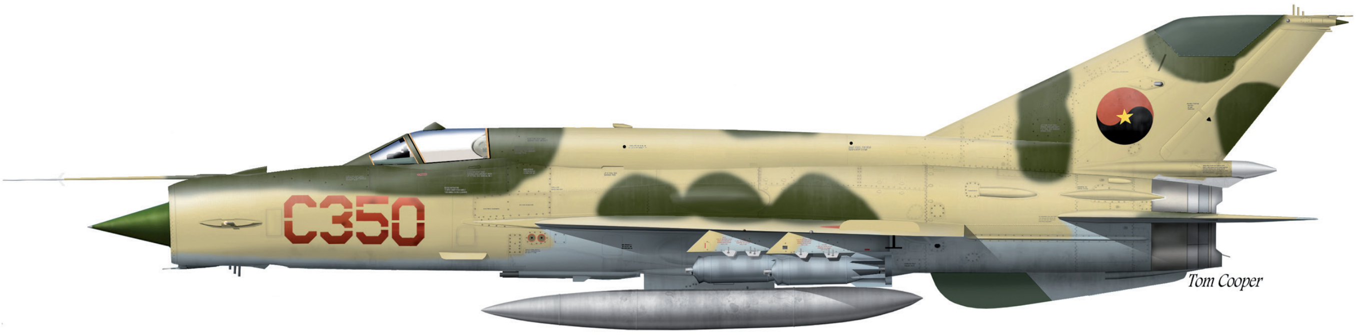
Despite their intensive deployment, nine of the original 12 Antonov An-26s of the FAPA/DAA were still around as of 1987. At that time, all still wore camouflage colours (usually in two shades of green), or were painted like this example, in blue-green on upper surfaces and sides, and light admiralty grey (BS381C/697) on undersurfaces. Correspondingly, all also wore military markings, usually including their serial number (T-223 in this case, repeated on the upper surface of the right wing) and fin flashes. While one was configured as a VIP transport, the rest of the fleet was equipped with bomb shackles and regularly flew strikes on distant UNITA bases. In 1987, this fleet was reinforced with several of the more powerful An-32s – better suited for 'hot and high' operations over the Angolan central plateau – followed by additional An-26s, all of which wore civilian registrations prefixed with 'D2'. (Artwork by Tom Cooper)



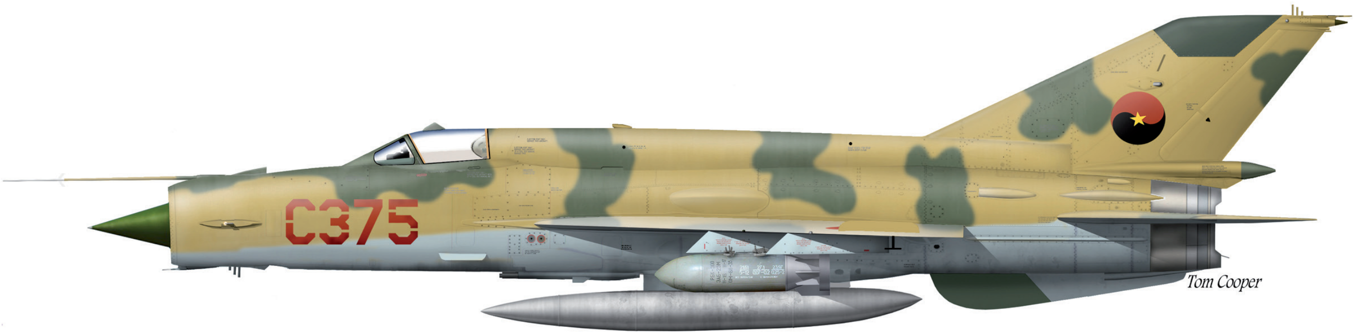
Although the Mil Mi-25 was highly regarded by its Angolan and Cuban crews – especially for its robustness and survivability – attrition of this variant was heavy: out of more than 20 acquired between 1984 and 1987, only five were operational as of November of the latter year, including serials H311, H323, and H336. The example with serial number H323 eventually ran out of luck during the defence of Huambo and Kuito, in 1990–91: it survived an unknown type of combat damage but was abandoned at Huambo airport. It is illustrated in the typical 'armament configuration' for this type of the 1980s: with its chin barbette with a six-barrel 12.7mm machine gun and a single UB-32-57 pod for unguided rockets under each of the stub wings. (Artwork by Tom Cooper)



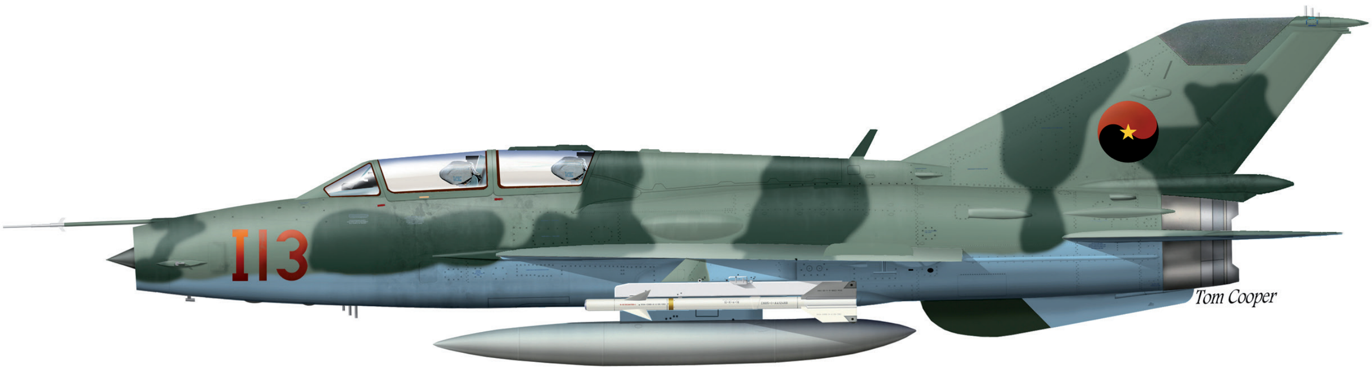
Mi-35s delivered to Angola starting from mid-1987, had the same standardised camouflage pattern as the Mi-25s before them. This consisted either of lemon (BS381C/355) or light buff (BS381C/358) and dark brown (BS381C/412) on upper surfaces and sides, and a rather bluish version of light admiralty grey (BS381C/697), which almost resembled the pale roundel blue (BS381C/172), on undersides. Out of 10 Mi-35s listed by Angolan sources as available in November 1987, five serial numbers are known: H350, H353, H355, H357 and H358. Although having slightly improved avionics, they still lacked chaff and flare dispensers: these appeared only on the batch wearing serial numbers from H365 upwards, delivered in 1990–91. (Artwork by Tom Cooper)



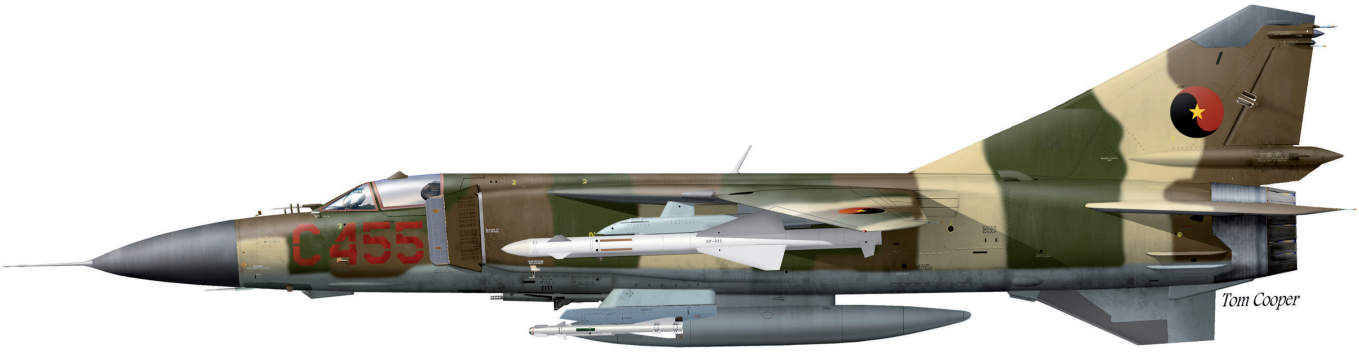
For all practical purposes, even the latest MiG-21bis sub-variants were obsolete by 1987. Much too fast, while short-ranged and lacking the ability to carry sufficient amounts of ordnance, they were ill-suited for the war in Angola. Nevertheless, they were beloved – by pilots and ground crews alike – for their simple maintenance and ruggedness and thus the FAPA/DAA continued placing additional orders for them in Moscow. This example belonged to at least the fourth batch acquired since 1984 – and the last to wear the standardised camouflage pattern known as 'horns'. This was applied in beige (BS381C/388) and olive drab (BS381C/298) on upper surfaces and sides, and light admiralty grey (BS381C/697) on undersurfaces. This example is shown armed with four FAB-250M-54 general-purpose high-explosive bombs. (Artwork by Tom Cooper)



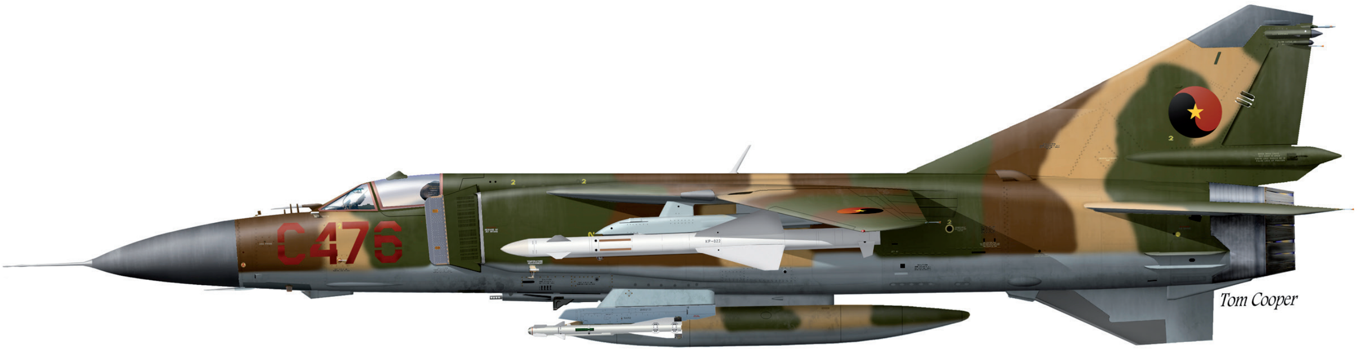
By 1988, the production of MiG-21s was long since over, but the USSR was still ready to deliver refurbished, second-hand examples from surplus stocks of its air force. The last batch of MiG-21bis known to have been acquired by Angola consisted of such aircraft. They were recognisable not only by their high serial numbers (starting from around C360 upwards), but also a camouflage pattern only reminiscent of the 'horns' and applied in light stone (BS381C/361) and dark green (BS381C/641) on upper surfaces and sides, and a rather 'bluish' version of the light admiralty grey (BS381C/697), similar to pale roundel blue (BS381C/172), or medium blue (FS35526). This example is shown armed with an RBK-500 cluster bomb (with a ballistic cap over its nose): one of the heftiest weapons for ground attack ever deployed by this type. (Artwork by Tom Cooper)



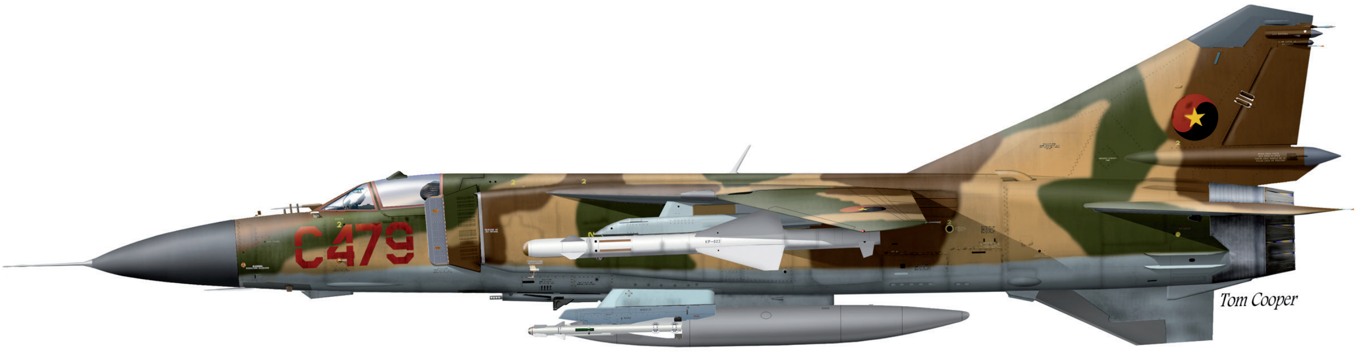
This is a reconstruction of the MiG-21UM serial number I13, probably acquired together with the MiG-21bis in the mid-1980s. The jet soldiered with the Cuban-staffed unit through the early part of its career before being handed over to its official owners in 1988. Such two-seat conversion trainers were mainly deployed for the training of novice pilots but were also used for continuation training. Occasionally, they were used for armed reconnaissance – either armed with R-3S or R-13M ('AA-2 Atoll') air-to-air missiles, as shown here, or with various bombs. The first Angolan MiG-21UMs – including the serial number I10, shot down on 27 October 1987 – would have arrived left in 'bare metal' or 'silver grey' overall: this example eventually received a camouflage pattern in grey-green (BS381C/283) and middle Brunswick green (BS381C/226) on top surfaces and sides, and arctic blue (BS381C/112) on undersurfaces. (Artwork by Tom Cooper)



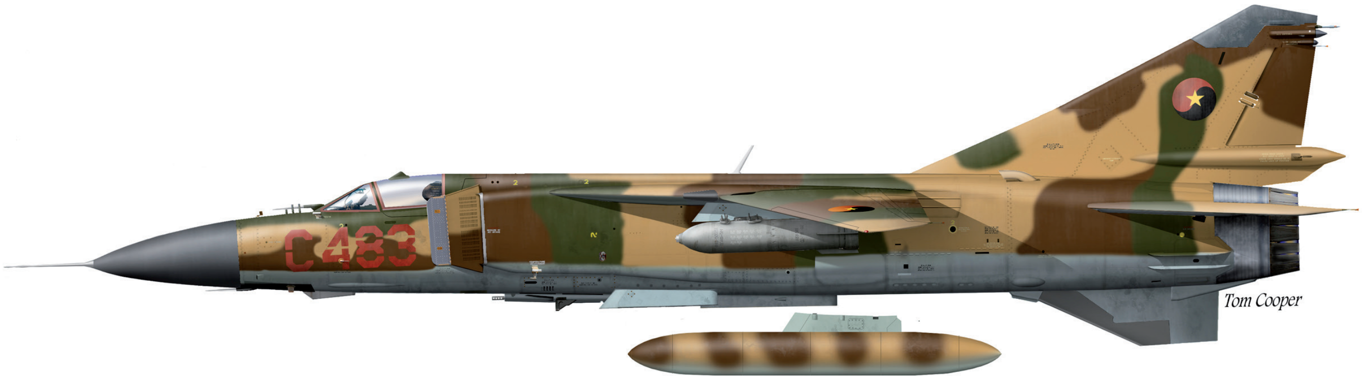
This is a reconstruction of the MiG-23ML serial number C455, as seen in a photograph too poor for reproduction. Belonging to the second batch delivered to Angola in 1985–86, it still received a camouflage pattern consisting of beige (BS381C/288), dark brown (BS381C/450) and dark green (BS381C/641) on upper surfaces and sides: the pattern was non-standardised and differed from aircraft to aircraft, and the lower front fuselage (area below the serial number) might have received some repainting, possibly applied following an unknown type of combat damage. Undersurfaces were painted in light admiralty grey (BS381C/697), and national markings applied in four positions. (Artwork by Tom Cooper)



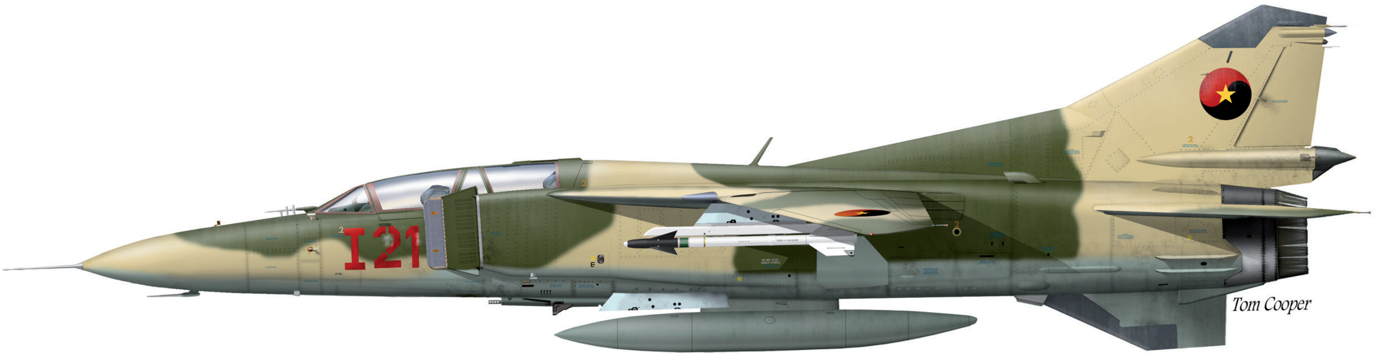
Sometime during the first months of 1988, Angola received its fourth batch of MiG-23MLs – the first to receive camouflage patterns including light stone (BS381C/361), deep Indian red (BS381C/448), and dark green (BS381V/641) on upper surfaces and sides. Sadly, the available photographs and videos are unclear regarding the underside colour: this was either still light admiralty grey (BS381C/697), as illustrated here, or pale roundel blue (BS381C/172).This is a reconstruction of the MiG-23ML serial number C476, piloted by Captain Orlando Carbó Gálves on 25 February 1988, when he was vectored by 1st Lieutenant Ricardo Rafael López Castillo to intercept three Mirage F.1AZs of the SAAF. It is shown as configured for air combat, including an R-24R under the left wing (R-24T was under the right), and an R-60MK under the fuselage. (Artwork by Tom Cooper)



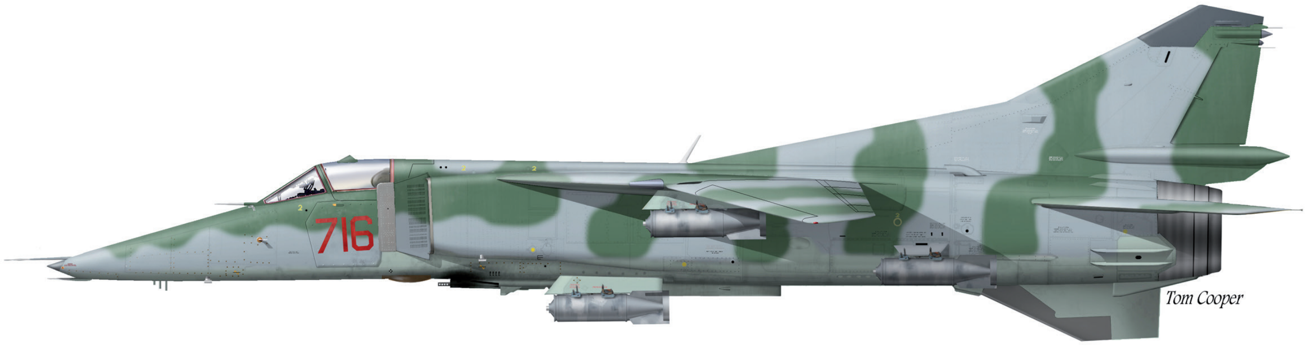
The last of the 'famous' Cuban-operated MiG-23MLs of the FAPA/DAA as of 1987–89, was this example; serial number C479. On 7 August 1988, it was flown by Captain Alberto Olivares Horta, who was scrambled to intercept an 'unidentified' aircraft passing high over Cuito Cuanavale underway in the direction of Luanda. Following a dash at Mach 1.9, rather unusually, Horta acquired his target with the R-24T (infrared homing version), installed on the left shoulder station (Station No. 3) as illustrated here, and fired from a range of 20km. It was only once this missile blew away the starboard engine of OK-1 that he saw his target and then fired an R-24 (semi-active radar homing version) from Station No. 4. To the good fortune of the occupants of OK-1, the second missile went after the burning wreckage of the engine blown away by the first hit. (Artwork by Tom Cooper)



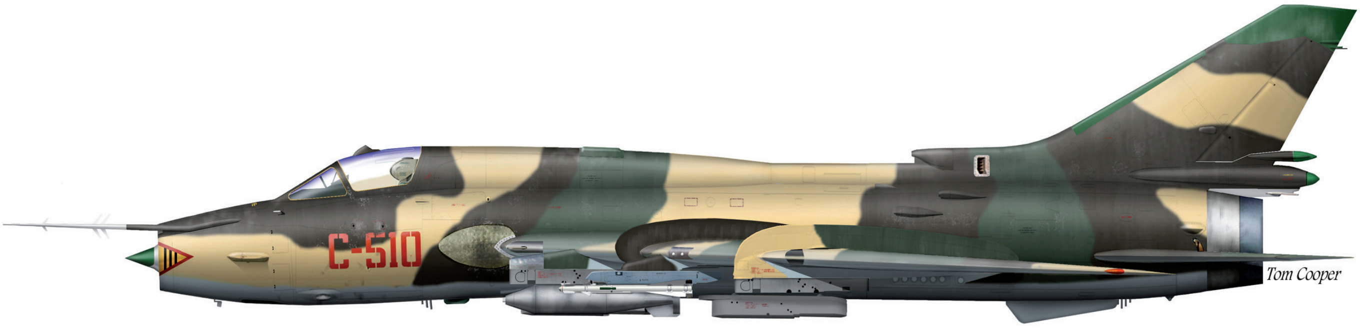
Another from the batch of MiG-23MLs delivered to Angola sometime within the first few months of 1988 was this example, serial number C483, also shown in the cover photograph of this book. The jet was assigned to one of two units of the DAA/FAR contingent in Angola operating MiG-23s at this time and might have been forward deployed to Cahama AB as of June 1988. It is shown as painted in light stone (BS381C/361), deep Indian red (BS381C/448), and dark green (BS381C/641) on upper surfaces and sides, light admiralty grey (BS381C/697) on undersurfaces. It is armed with an OFAB-500ShN parachute-retarded bomb on the Station No. 3. One of the Polish-supplied 800-litre drop tanks is shown underneath. (Artwork by Tom Cooper)



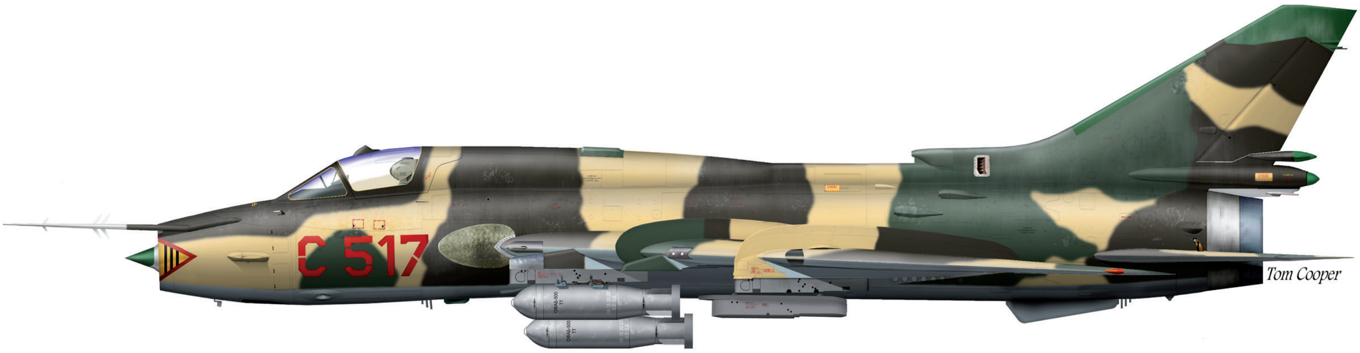
Over the years, and together with MiG-23MLs, Angola acquired up to 11 MiG-23UB two-seat conversion trainers (known are serial numbers from I20 to I30). Most of them had camouflage patterns applied prior to delivery and similar to this one in beige (BS381C/697) and dark green (BS381C/641) on upper surfaces and sides, and light admiralty grey (BS381C/697) on undersurfaces, but a few were also sighted wearing an unknown shade of dark brown. For most of their careers, these jets served as trainers, however, the Cubans operated them for reconnaissance purposes, too – usually with the pilot in the rear cockpit carrying a hand-held Zenith camera. Whenever underway on such missions, they were armed with R-13M infrared homing air-to-air missiles. (Artwork by Tom Cooper)



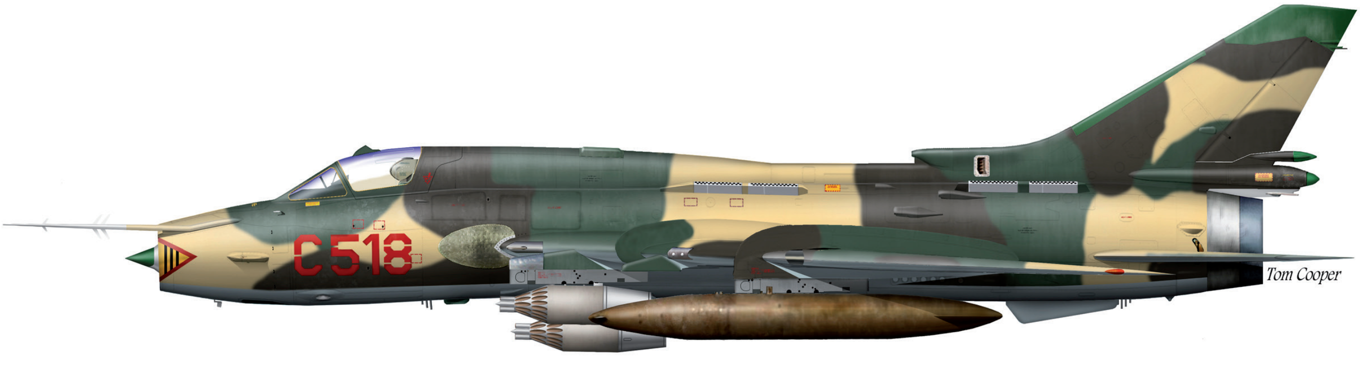
The Cuban MiG-23BNs arrived in Angola in early July 1988 wearing their usual (though non-standard) camouflage patterns in light French blue (BS381C/178) and deep Brunswick green (BS381C/2279) on top surfaces and sides, and light admiralty grey (BS381C/697) on undersurfaces. As far as is known, this jet – serial number 716 – was the sole exception: it was painted in colours similar to light weatherwork grey (BS381C/676) and grass green (BS381C/218) on upper surfaces and sides, while undersides were probably left in light admiralty grey. The jet is shown as armed with RBK-250 cluster bomb units, including one on the rear fuselage hardpoint. A few were photographed while loaded with FAB-250-230 bombs and 800-litre underwing drop tanks acquired from Poland. 716 crashed in December 1988, killing the pilot Julio Herrera Guerra. (Artwork by Tom Cooper)



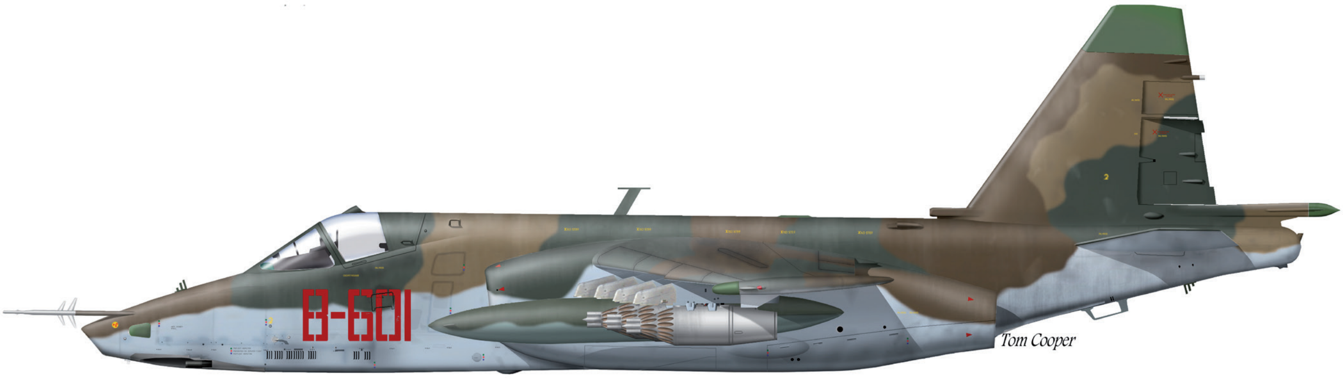
The first batch of Sukhoi Su-22M-4s reached Angola in early 1989. They wore quite dissimilar versions of the standardised camouflage pattern applied on the same version of this jet delivered to Afghanistan and the People's Democratic Republic of Yemen ('South Yemen') around the same time, including beige (BS381C/388), dark green (BS381/641) and dark camouflage brown (BS381C/436) or service brown (BS381C/499) on upper surfaces and sides. Undersurfaces were painted in light admiralty grey (BS381C/697). Serial numbers were applied in unusual relatively small fonts in red on the forward fuselage. Unusually – though starting a practice followed throughout the 1990s – they wore no national markings at all. (Artwork by Tom Cooper)



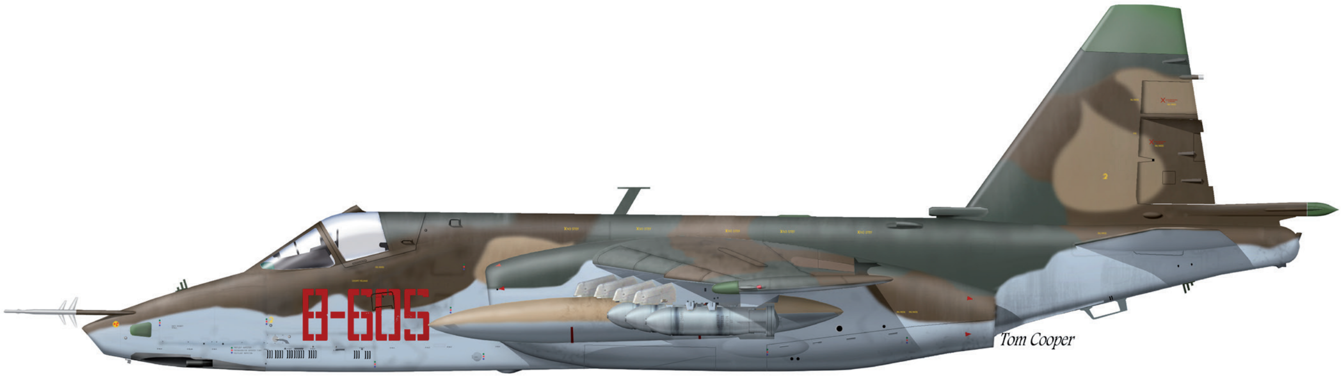
The second batch of Su-22M-4s reached Luanda by ship by the end of 1989: they retained the camouflage pattern of the first, but received serial numbers (known are C515, C517, and C518) in the same fonts as applied on MiG-23MLs. While the artwork at the top of this page shows a jet armed with a RBK-250 cluster bomb on the inboard pylon, and the R-60MK short-range air-to-air missile on the central underwing hardpoint, the carriage of the latter was soon discontinued: generally, the RA/DAAS tended not to vector this type into intercepts of aircraft underway over eastern Angola because they lacked the necessary range. This example is shown as armed only with OFAB-500 parachute-retarded incendiary bombs, filled with so-called fuel air explosives, and – reportedly – highly effective against FALA's infantry. (Artwork by Tom Cooper)



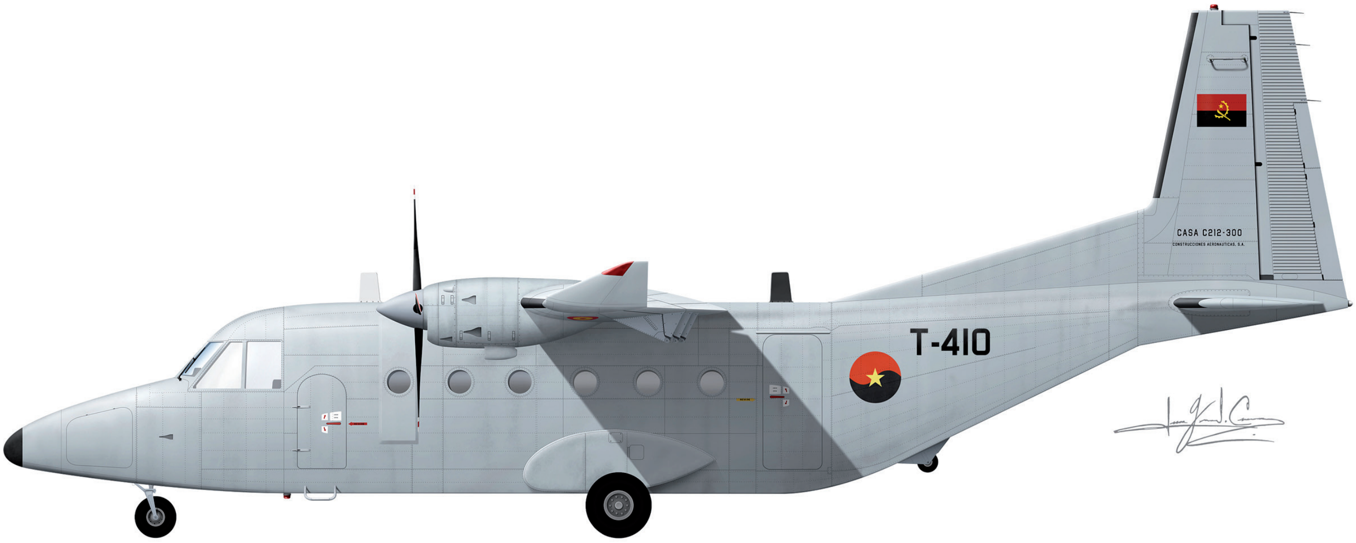
The size of Angola and the short range of the Su-22M-4 made the carriage of drop tanks on outboard underwing pylons obligatory, and this jet is shown as equipped with a 600-litre drop tank in that position. As well as OFAB-500s, Angolan Su-22M-4s frequently deployed UB-32-57 pods for S-5 unguided rockets, two of which are shown: one installed on the inboard underwing hardpoint, and one on the front pair of under-fuselage hardpoints – almost the same configuration in which this jet was sighted for the last time, after suffering a landing mishap at Luanda IAP in the mid-1990s. As usual for this variant, it wore no national insignia, but is shown with its chaff and flare dispensers (installed on upper sides of the centre and rear fuselage) in their place. (Artwork by Tom Cooper)



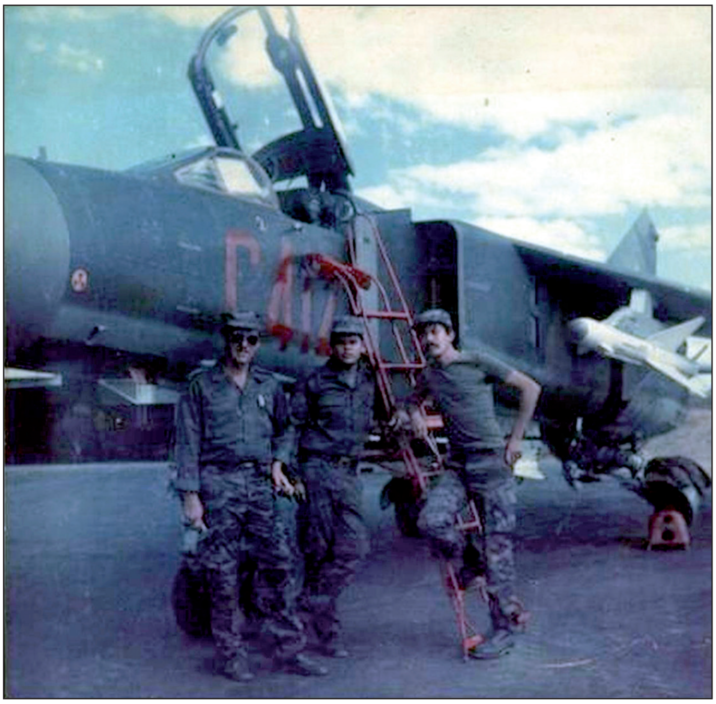
This is a reconstruction of the first of at least 10 Su-25Ks delivered to Angola in 1989: serial number B-601. Known serials for single-seaters went up to B-610; visually confirmed serials for Su-25UBK two-seaters were I-40 and I-41, but there are reports about the existence of examples with serials up to I-44. As in the case of Su-22M-4s, Angolan single-seaters received no national insignia: two-seaters wore them in four positions. Originally camouflaged in dark brown (FS34088) and dark green (FS34424) on upper surfaces and sides, and light admiralty grey (BS381C/697) on undersurfaces, most had large splotches of dark sand (BS30313) on various parts of the airframe applied prior to delivery. (Artwork by Tom Cooper)



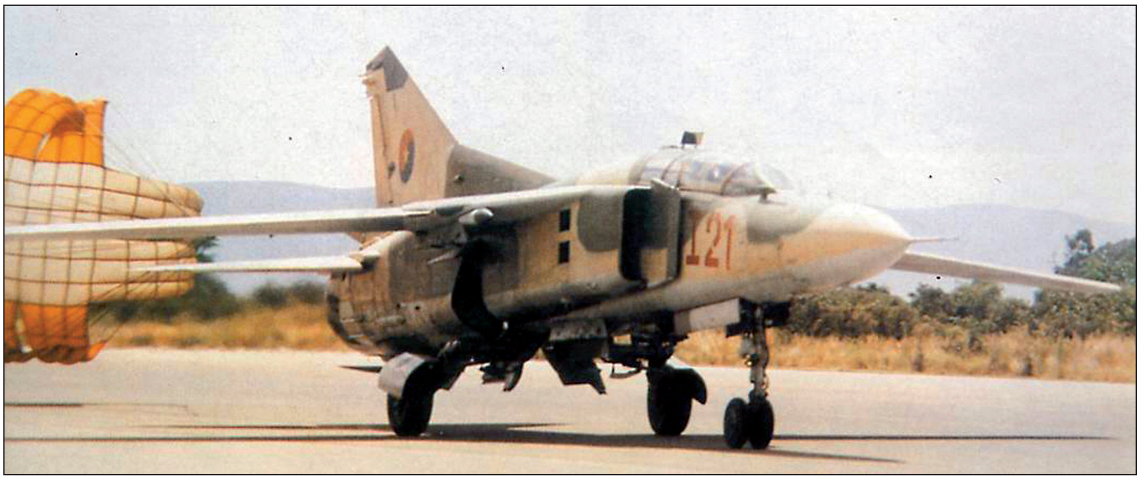
Quite surprisingly considering Soviet experiences from Afghanistan, and the widespread application of chaff and flare dispensers on all possible combat aircraft types in Soviet service during the second half of the 1980s, Angolan Su-25s received no such installations. Another irony is that the Russians complained that Angolans usually employed them from exactly the same high altitudes as the Soviet Su-25 pilots operated from in Afghanistan, while all available photographs show Angolan jets of this type armed with munitions suitable for low-altitude operations, like UB-32-57 pods (as shown in the artwork at the top of the page) or OFAB-250 parachute-retarded incendiary bombs (shown here). Following a relatively short service, the surviving Angolan Su-25s – including the B-608, badly damaged in a landing accident – were abandoned at Catumbela AB in 1991–92. (Artwork by Tom Cooper)



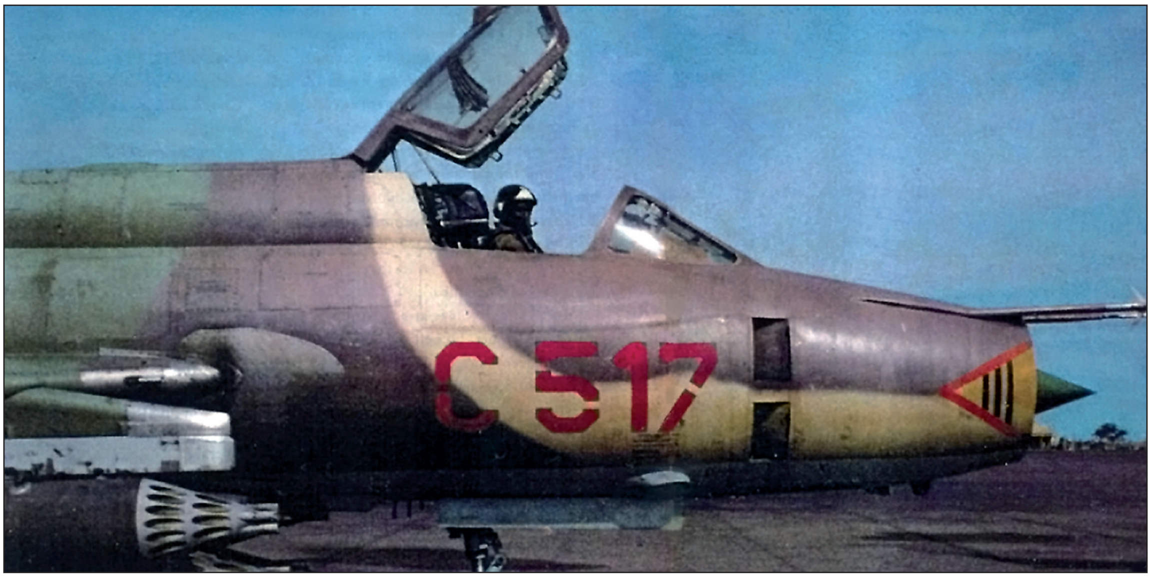
Delivered between 1985 and 1989, the small Angolan fleet of Spanish-made CASA C.212 light transports (including four configured for maritime patrol purposes) saw intensive deployment and suffered no fewer than seven losses by 1997. This example, serial number T-410, was shot down while underway between Kuito and Huambo on 27 March 1990 with the loss of all 25 of the crew and passengers. As far as is known, all were painted in light aircraft grey (BS381C/607) overall and had fin flashes, and roundels applied in four positions. (Artwork by Luca Canossa)



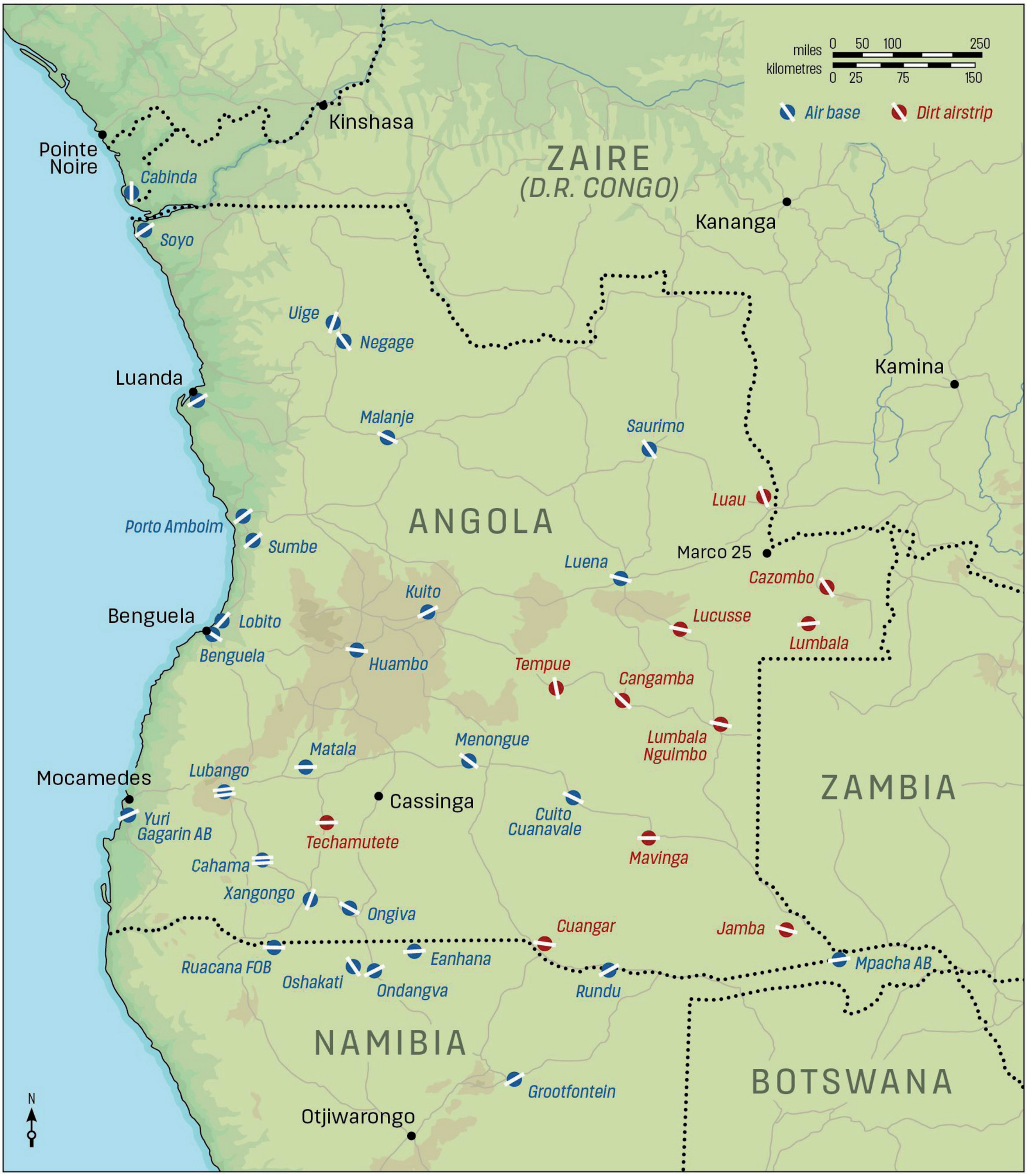
A rare colour photograph of the MiG-23ML serial number C412, along with three pilots of the DAA/FAR contingent in Angola. Notable to the right is a R-24T: the infrared homing version of the medium-range air-to-air missile. (via Luis Dominguez)



I21 – the first MiG-23UB two-seat conversion trainer delivered to Angola, rolling down the runway of Lubango AB sometime in 1987 or 1988. This was the jet piloted by Colonel Pedro Pérez (with Lieutenant Colonel Vega Toscano in the rear cockpit), in the post-strike reconnaissance of the Caleque Dam on 26 June 1988. (Mark Lepko Collection)



A close-up view of the cockpit section of the Su-22M-4 serial number C517 – with its camouflage pattern washed out by the rain and sun. Notable in the left lower corner is the front part of an UB-32-57 pod for unguided rockets. (Pit Weinert Collection)


miles 0 50 100 250
kilometres 0 25 75 150
Air base
Dirt airstrip
Kinshasa
Pointe Noire
Cabinda
Soyo
ZAIRE
(D.R. CONGO)
Kananga
Kamina
Uige
Negage
Luanda
Malanje
Saurimo
Luau
Porto Amboim
Sumbe
ANGOLA
Marco 25
Luena
Cazombo
Kuito
Lucusse
Lumbala
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Lobito
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Huambo
Tempue
Cangamba
Lumbala Nguimbo
Matala
Menongue
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Mocamedes
Cassinga
ZAMBIA
Yuri Gagarin AB
Techamutete
Cuito Cuanavale
Mavinga
Cahama
Xangongo
Ongiva
Cuangar
Jamba
Ruacana FOB
Eanhana
Oshakati
Ondangva
Rundu
Mpacha AB
NAMIBIA
BOTSWANA
Grootfontein
Otjiwarongo
N

A map of the air bases, major airfields and most important dirt strips in Angola and northern South West Africa in 1987–89 and 1989–91. (Map by Micky Hewitt)

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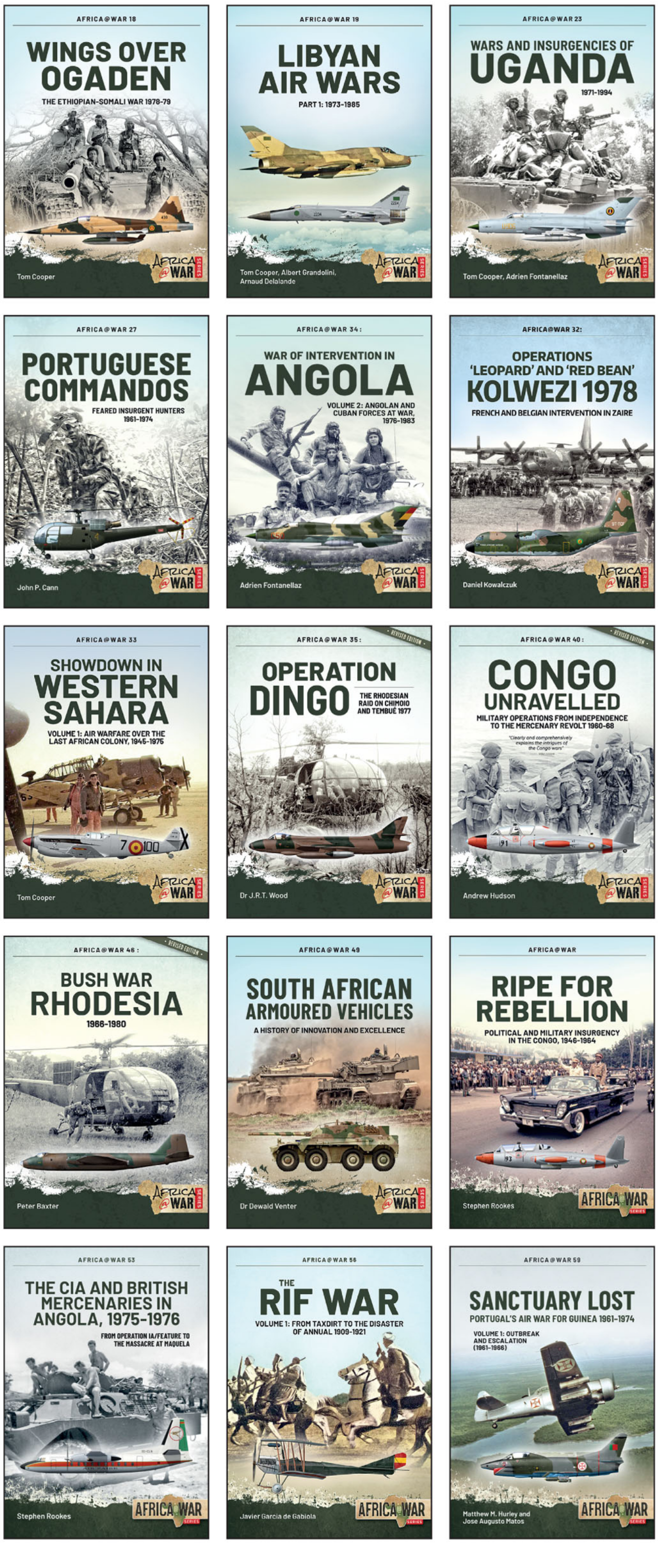
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